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FIRST SESSION, FORTY-THIRD CONGRESS.

EXECUTIVE DOCUMENTS

PRINTED BY ORDER OF

THE HOUSE OF REPRESENTATIVES.

1873-'74.

IN SEVENTEEN VOLUMES:

Volume 1....No. 1, Foreign Relations, parts 1, 2, and 3.
Volume 2....No. 1, part 2, War, parts 1, 2, and 3.
Volume 3....No. 1, parts 3 and 4, Navy and Postmaster.
Volume 4....No. 1, part 5, Interior, parts 1 and 2.
Volume 5....No. 1, part 6, and No. 2.
Volume 6....Nos. 3 and 4.
Volume 7....Nos. 5, 36, 124, and 187.
Volume 8....No. 6 to No. 57, inclusive, except No. 36.
Volume 9....No. 58 to No. 122, inclusive.
Volume 10....No. 123 to No. 141, inclusive, except Nos. 124 and 133.
Volume 11....No. 133, Coast Survey.
Volume 12....No. 142 to No. 210, inclusive, except Nos. 143, 183, and 187.
Volume 13....No. 143, Commercial Relations.
Volume 14....No. 183, Commerce and Navigation.
Volume 15....No. 211 to No. 219, inclusive.
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Volume 17....No. 256 to No. 290, inclusive.

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INDEX

TO

THE EXECUTIVE DOCUMENTS

OF THE

HOUSE OF REPRESENTATIVES OF THE UNITED STATES

FOR THE

FIRST SESSION OF THE FORTY-THIRD CONGRESS.

Subject.	Vol.	Part.	No.	Page.
A.				
Absence, letter from the Secretary of War, transmitting a petition of officers of the Sixth Infantry, asking to be placed on bettter footing with regard to leaves of	12	.....	155	.....
Accounts, letter from the Secretary of War, in relation to a number of, of disbursing officers of the Army	9	.....	107	.....
letter from the Secretary of the Treasury, relative to unsettled, of Army paymasters	9	.....	112	.....
Adjutant-General, report of the, (vol. 1,) of	2	2	1	54
Alcatraz Island, letter from the Secretary of War, relating to an appropriation to build permanent barracks at	16	.....	234	.....
letter from the Secretary of War, on same subject as above	17	.....	266	.....
Allegany reservation, letter from the Secretary of the Interior, relative to leasing or selling a portion of the, in the State of New York	9	.....	110	.....
American seamen, letter from the Secretary of State, transmitting a report in compliance with act of March 2, 1799, for the relief of	8	.....	34	.....
Annuities, letter from the Secretary of the Interior, transmitting draught of a bill providing for the manner of paying, to Indian tribes	8	.....	56	.....
Appropriations, letter from the Secretary of the Treasury, transmitting estimates of	7	.....	5	.....
index of the above	7	.....	5	309
letter from the Secretary of the Navy, asking an apppropriation to meet extraordinary expenses of his Department	8	.....	9	.....
letter from the Secretary of the Interior, transmitting estimate of, to supply a deficiency in the appropriation for building a penitentiary in Wyoming Territory	8	.....	13	.....
letter from the Secretary of the Interior, transmitting estimate of appropriation to subsist the Modoc Indians	8	.....	22	.....
letter from the Secretary of the Interior, transmitting special estimate of, to purchase subsistence for Indian tribes in Indian Territory	8	.....	23	.....
letter from the Secretary of the Interior, transmitting estimate of, to supply a deficiency for continuation of geological and geographical survey of the Territories	8	.....	26	.....

Digitized by Google

Subject.	Vol.	Part.	No.
Appropriations, letter from the Secretary of the Interior, transmitting estimate of, to supply deficiencies in the, for the clerical force of the Pension Bureau	8	.....	27
message from the President, transmitting revised estimates of, for expenses of the Government for the fiscal year ending June 30, 1875	7	.....	36
letter from the Secretary of the Interior, transmitting estimate of appropriation for educational purposes for the Sac and Fox Indians of the Missouri	8	.....	37
letter from the Secretary of the Interior, transmitting estimates of, for removal of Kickapoo Indians from Texas and Mexico	8	.....	39
letter from the Secretary of the Interior, transmitting estimates of, to aid Indians of Northern Superintendency in arts of civilized life	8	.....	40
letter from the Secretary of the Interior, transmitting estimate of, for collecting and subsisting the Apache Indians of Arizona and New Mexico	8	.....	41
letter from the Secretary of the Interior, transmitting estimate of, to indemnify the Pawnee Indians for 4,800 acres of land	8	.....	42
letter from the Secretary of the Interior, transmitting estimate of, to fulfill treaty obligations with Winnebago Indians of Nebraska	8	.....	44
letter from the Secretary of the Interior, transmitting estimate of appropriation for removal of Kansas tribe of Indians to the Indian Territory	8	.....	45
letter from the Secretary of the Interior, relative to an appropriation for the erection of Reform School buildings in the District of Columbia	8	.....	47
letter from the Secretary of War, relative to an appropriation for preservation of the Falls of Saint Anthony	8	.....	49
letter from the Secretary of the Interior, relative to an estimate of appropriation for continuing geological and geographical survey of the Territories	9	.....	74
letter from the Secretary of War, transmitting estimates of, for armament of fortifications	9	.....	69
letter from the Secretary of the Interior, recommending an appropriation for employment of a carpenter and shoemaker at Pawnee agency	9	.....	79
letter from the Secretary of the Interior, transmitting estimate of appropriation for removing Kickapoo and other roaming bands of Indians from Mexico to the Indian Territory	9	.....	90
letter from the Secretary of the Interior, transmitting estimate of appropriation to defray expenses incident to the survey of Indian reservations	9	.....	93
letter from the Secretary of the Interior, transmitting estimate of appropriation to defray expenses of holding a general council of Cherokee, Creek, &c., Indians	9	.....	93

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
Appropriations, letter from the Secretary of War, relative to an appropriation for the purchase of the property adjoining Winder's building	9	.....	106	.....
letter from the Secretary of the Interior, transmitting estimate of appropriation for purchase from Omaha Indians, in Nebraska, of such quantity of land as may be required for the Winnebagoes in Wisconsin	9	.....	109	.....
letter from the Secretary of the Treasury, transmitting estimates of deficiencies in, required to complete the service of the fiscal year ending June 30, 1874	10	.....	150	.....
letter from the Secretary of War, relative to an appropriation to repair existing pile-work at Ontonagon Harbor	12	.....	151	.....
letter from the Secretary of War, relative to an appropriation for improvement of the mouth of the Mississippi River	12	.....	152	.....
letter from the Secretary of War, relative to an appropriation for the protection of the banks of the Rio Grand River upon the site of Fort Brown, Texas	12	.....	153	.....
letter from the Secretary of the Interior, relative to an appropriation to aid Indians in Shasta County, California	12	.....	158	.....
letter from the Secretary of the Interior, relative to an appropriation for relief of the Flathead Indians in Montana	12	.....	168	.....
letter from the Secretary of War, relative to the act making, for support of the Army for year ending June 30, 1871	12	.....	179	.....
letter from the Secretary of the Interior, relative to an appropriation for subsisting the Red Cloud and Whetstone Indian agencies	12	.....	186	.....
letter from the Secretary of the Interior, relative to an appropriation for pressing necessities of the Chippewa Indians of the Red Cliff and Bad River reservations	12	.....	201	.....
letter from the Secretary of the Interior, relative to an appropriation for purchase of the lot on which is erected the public building in the city of Springfield, Ill	12	.....	202	.....
letter from the Secretary of War, transmitting statement of the amount of deficiency in his Department for fiscal year ending June 30, 1873	12	.....	203	.....
letter from the Secretary of War, relative to an appropriation to pay the claim of the estate of Maj. William B. Scott	15	.....	214	.....
letter from the Secretary of the Interior, relative to an appropriation required for Navy pensions for remainder of current fiscal year	15	.....	226	.....
letter from the Secretary of War, transmitting estimate of an appropriation for furnishing food to destitute persons on the Lower Mississippi River	16	.....	231	.....
letter from the Secretary of War, relative to an appropriation to build permanent barracks at Alcatraz Island	16	.....	234	.....
letter from the Secretary of War, relative to an appropriation to build permanent barracks at Alcatraz Island	17	.....	266	.....

Digitized by Google

Subject.	Vol.	Part.	No.
Appropriations, letter from the Secretary of the Treasury, transmitting statement of balances of, July 1, 1873, &c.	16	.....	235
letter from the Secretary of the Interior, relative to an appropriation to subsist certain Kickapoo Indians	16	.....	236
letter from the Secretary of the Interior, submitting estimate of appropriation for subdivision of White Earth reservation, Minnesota	16	.....	246
letter from the Secretary of the Interior, relative to an appropriation to meet outstanding indebtedness of Indian service in California	16	.....	243
letter from the Secretary of the Interior, relative to an appropriation for relief of Stockbridge and Munsee tribe of Indians, Wisconsin	16	.....	244
letter from the Secretary of the Interior, submitting estimates to pay interest to Osage Indians	16	.....	247
letter from the Secretary of War, relative to an appropriation for extension of a military telegraph line in Arizona Territory	17	.....	270
letter from the Secretary of the Interior, relative to an additional appropriation to complete the new jail in the District of Columbia	17	.....	279
Architect of the Capitol Extension, report of the	4	5	1
Argentine Republic, letter from the Secretary of War, relative to the education of military graduates of, at the Military Academy at West Point	16	.....	224
Arizona, letter from the Secretary of the Interior, transmitting estimate of appropriation for collecting and subsisting the Apache Indians in, and New Mexico	8	.....	41
letter from the Secretary of War, relative to want of a law affixing a penalty for tampering with military telegraph lines in	9	.....	86
letter from the Secretary of War, relative to an appropriation for the extension of a military telegraph line in	17	.....	270
Arkansas, letter from the Secretary of War, relative to right of way over the Fort Lyon military reservation to the Arkansas Valley Railroad Company	12	.....	164
message from the President, relative to the present political controversy in the State of	16	.....	229
message from the President, transmitting copies of correspondence between persons claiming to be governor of, and himself, relating to troubles in that State	16	.....	229
letter from the Secretary of the Interior, giving information relative to the Hot Springs reservation in	17	.....	273
Armies, letter from the Secretary of War, relative to "Instructions for the government of the, of the United States in the field."	9	.....	100
Army, report of the General of the	2	2	1
report of the Adjutant-General of the	2	2	1
report of the Commissary-General of Subsistence of the	2	2	1
report of the Chief of Engineers of the, (being vol. 2)	2	2	1
report of the Chief of Ordnance of the, (being vol. 3)	2	2	1

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
Army, report of the Chief Signal-Officer of the	2	2	1	229
report of the Paymaster-General of the	2	2	1	219
report of the Quartermaster-General of the	2	2	1	99
report of the Surgeon-General of the	2	2	1	209
letter from the Secretary of War, relative to the issue of clothing to certain enlisted men of the	8	.....	18	.....
letter from the Secretary of War, relative to a number of accounts of disbursing-officers of the, as still unsettled	9	.....	107	.....
letter from the Secretary of the Treasury, relative to accounts of regular and additional paymasters of the, remaining unsettled	9	.....	112	.....
letter from the Secretary of War, relative to the act of July 15, 1870, making appropriations for support of the	12	.....	179	.....
Army-clothing, letter from the Secretary of War, transmitting draught of joint resolution authorizing the issue of, to certain enlisted men of the Army	8	.....	18	.....
Army Mutual Survivorship Annuity Society, letter from the Secretary of War, in relation to the formation of	17	.....	277	.....
Attorney-General, annual report of the	8	.....	6	.....
transmits answer to resolution of the House, relative to the expenses incurred by the abolition of the franking privilege	8	.....	31	.....
B.				
Bridge, letter from the Secretary of War, transmitting reports on the construction of the Saint Louis and Illinois, across the Mississippi River	12	.....	194	.....
letter from the Secretary of War, relative to granting the Memphis and Vicksburgh Railroad Company the right to build a, over the Yazoo River	16	.....	254	.....
Bridges, letter from the Secretary of War, transmitting draught of a bill to regulate the construction of, over the navigable waters of the United States.	10	.....	128	.....
letter from the Secretary of War, transmitting report of the board of engineers, relative to bridging the channels between Lake Huron and Lake Erie	9	.....	64	.....
Bureau of Refugees, Freedmen and Abandoned Lands, letter from the Secretary of War, transmitting certain developments connected with the late	8	.....	10	.....
Freedmen and Abandoned Lands, letter from the Secretary of War, transmitting additional developments connected with the late	8	2	10	.....
Bureau of Statistics, annual report of the	12	.....	183	.....
table of contents of the above	12	.....	183	3
communication from the Chief of the, relative to printing in the Swedish language his special report on immigration	17	.....	287	.....
Byers, James, letter from the Secretary of War, relating to the claim of	16	.....	225	.....
Barracks, letter from the Secretary of War, relative to proposals by citizens of Atlanta, Georgia, to sell ground for, &c	12	.....	182	.....
letter from the Secretary of War, relative to an appropriation for permanent, at Alcatraz Island	15	.....	266	.....
Beds for Indian goods, letter from the Secretary of the Interior, transmitting draught of bill for regulating	15	.....	238	.....
Board of public works, report of the, of the District of Columbia	5	6	1	.....

Digitized by Google

Subject.	Vol.	Part.	No.
Boiler explosions, message from the President, transmitting report of the commission to investigate the causes of.	8	.....	46
Bounties, letter from the Secretary of War, relating to the insufficiency of the unexpended balance of appropriation for collection and payment of, to colored soldiers and sailors.	9	.....	66
Bridge, letter from the Secretary of War, relative to a, now in process of construction across the Schuylkill River at South street, Philadelphia	9	.....	62
letter from the Secretary of War, relating to bill of the House No. 966, relating to the use by the public of the, and roads connecting the cities of Davenport and Rock Island	9	.....	67
letter from the Secretary of War, relative to the removal of the north pier of the old railroad, of the Chicago, Rock Island and Pacific Railroad, at Davenport, Iowa	9	.....	83
letter from the Secretary of War, relative to narrowing of the Virginia draw in the Long, over the Potomac River	12	.....	178
Bureau of Statistics, report of the chief of the, on commerce and navigation	14	.....	183
C.			
California, letter from the Secretary of the Interior, transmitting report of special agent appointed to visit the Mission Indians of Southern	9	.....	91
letter from the Secretary of the Interior, transmitting draught of a bill to amend an act to restore a part of the Round Valley Indian reservation in.	9	.....	118
letter from the Secretary of the Interior, transmitting report showing existing necessity for legislation in behalf of Mission Indians of	12	.....	156
letter from the Secretary of the Interior, relative to an appropriation to aid the Indians in Shasta County	12	.....	158
letter from the Secretary of War, relative to an examination of the wreck of the ship Patrician and Noonday Rock, at entrance to harbor of San Francisco	12	.....	189
letter from the Secretary of the Navy, relative to the necessity for a better supply of fresh water and for the construction of improved roads at the Mare Island navy-yard in	12	.....	199
letter from the Secretary of War, relative to the restoration of certain lands in, to homestead and pre-emption settlement	12	.....	205
letter from the Secretary of the Interior, relative to an appropriation to meet outstanding indebtedness of the Indian service in	15	.....	243
message from the President, transmitting papers on the subject of irrigation of the San Joaquin, Tulare, and Sacramento Valleys	17	.....	290
Canal, letter from the Secretary of War, relative to the plan and route of the Sturgeon Bay and Lake Michigan Ship-Canal	9	.....	88
letter from the Secretary of War, showing progress of the work on harbor of refuge at mouth of Sturgeon Bay and Lake Michigan Ship-Canal	9	.....	104
letter of the Secretary of War, in answer to a resolution of the House, relative to a ship-canal to connect the Mississippi River with the Gulf of Mexico.	9	.....	113
letter from the Secretary of War, transmitting, in answer to a resolution of the House, a report upon an examination of waters for the extension of the Chesapeake and Ohio	12	.....	208

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
Canal, letter from the Secretary of War, transmitting, in answer to a resolution of the House, a report upon the James River and Kanawha	15	.....	219	.....
letter from the Secretary of War, relative to the ship-canal to connect the Mississippi River with the Gulf of Mexico	15	.....	220	.....
letter from chief clerk of War Department, in answer to a resolution of the House, in relation to the extension of the Chesapeake and Ohio	17	.....	265	.....
Captured and abandoned cotton and other property, letter from the Secretary of the Treasury, relative to amount of money paid into the Treasury arising from	12	.....	146	.....
Census, report of the Superintendent of the	4	5	1	756
Chaves, Antonio, letter from the Secretary of the Interior, transmitting transcript of land-grant to, being land-claim reported as No. 79	10	.....	149	.....
Chief of Engineers, report of the (vol. 2)	2	2	1	.....
Chief of Ordnance, report of the (vol. 3)	2	2	1	.....
Chief Signal-Officer, report of the (vol. 1)	2	2	1	219
Civil-service commission, message of the President, transmitting the report of the	16	.....	221	.....
Civil-service reform, letter from the Secretary of War, transmitting reports from the various Bureaus in his Department, in relation to	10	.....	139	.....
Claims, letter from the Secretary of War, transmitting reports of the Quartermaster-General and Commissary-General of Subsistence, relative to certain classes of, growing out of the late war	9	.....	121	.....
Clark, Ambrose J., letter from the Secretary of the Treasury, in answer to resolution of the House, in relation to late paymaster United States Navy at Brooklyn, N. Y.	17	.....	262	.....
Clerks, letter from the Secretary of the Interior, relative to an increase of the clerical force in his Department	8	.....	14	.....
letter from the Secretary of State, transmitting list of, and others employed in his Department	8	.....	35	.....
letter from the Postmaster-General, transmitting list of, and others employed in his Department	9	.....	98	.....
letter from the Secretary of the Navy, transmitting list of, and others employed in his Department	9	.....	111	.....
letter from the Secretary of War, relative to the reduction of the clerical force in his Department	15	.....	215	.....
Clinton, George, message from the President, transmitting a communication from the governor of New York, relative to a bronze statue of, deceased	9	.....	115	.....
Clothing, letter from the Secretary of War, transmitting draught of a joint resolution for the issue of, to certain enlisted men of the Army	8	.....	18	.....
letter from the Secretary of War, relative to, lost by the enlisted men of Company F, Third United States Cavalry	12	.....	144	.....
Coast Survey, annual report of the Superintendent of the, for year 1873	10	.....	133	.....
Colorado, letter from the Secretary of War, relative to the sale of the military reservation at Fort Reynolds, in the Territory of	8	.....	51	.....
Colorado River, letter from the Secretary of War, relating to a project for the protection of the banks of the, at Yuma Depot	12	.....	154	.....
letter from the Secretary of War, relative to the number and dimensions of the Government buildings at Yuma Depot liable to damage from freshets in the	17	.....	261	.....
Colored soldiers, letter from the Secretary of War, relating to the insufficiency of the unexpended balance of appropriation for collection and payment of bounties to	9	.....	66	.....

Digitized by Google

Subject.	Vol.	Part.	No.
Commerce and navigation, annual report of the Chief of the Bureau of Statistics on the, of the United States	14	.....	183
table of contents of the above	14	.....	183
Commercial relations, letter from the Secretary of State, transmitting report of the, of the United States	13	.....	143
letter from the Secretary of State, transmitting communication on the subject of the, of the United States	16	.....	211
Commissary-General of Subsistence, report of the, (vol. 1)	2	2	1
Commissary stores, letter from the Secretary of War, transmitting draught of a bill relating to the sale of	8	.....	52
Commissioner of Indian Affairs, annual report of the	4	5	1
Commissioner of Internal Revenue, annual report of the	6	.....	4
index of the above	6	.....	4
Commissioner of the General Land-Office, annual report of the	4	5	1
Commissioner of Pensions, annual report of the	4	5	1
Comptroller of the Currency, annual report of the	6	.....	3
Papers accompanying the above:			
Appendixes, with references to same	6	.....	3
Reports of the condition of national banking associations	6	.....	3
Index of towns	6	.....	3
Consular fees, message from the President, transmitting a letter from the Secretary of State, with a report of, collected by consular officers of the United States during the year ending December 31, 1872	8	.....	8
Contingent expenses, letter from the Secretary of State, transmitting statements of the contingent fund for, of the State Department for year ending June 30, 1873	8	.....	7
letter from the Secretary of the Treasury, transmitting statement of the expenditure of the contingent fund for the, of his Department for the fiscal year ending June 30, 1873	10	.....	131
letter from the Postmaster-General, transmitting statement of disbursement of the contingent fund for, of his Department for year ending June 30, 1873	9	.....	9[illegible]
Contracts, letter from the Postmaster-General, transmitting report of, other than carrying the mail, with his Department	9	.....	9[illegible]
message from the President relative to the extent of the, purchases, and expenditures for Indian service since July 1, 1873	10	.....	12[illegible]
letter from the Secretary of the Treasury, in answer to a resolution of the House in relation to, made under authority of the Treasury Department, in compliance with act of May 8, 1872, known as the Sanborn	10	.....	13[illegible]
letter from the Secretary of the Treasury, transmitting additional papers in relation to the Sanborn	10	2	13[illegible]
letter from the Secretary of War, transmitting statement of, made by the various Bureaus of the War Department during the year 1873	12	.....	15[illegible]
Convicts, message from the President, transmitting report from the Secretary of State, with accompanying papers, relating to the landing of foreign, on our shores	16	.....	25

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
Cotton, letter from the Secretary of the Treasury, relative to amount of money paid into the Treasury arising from, and other captured and abandoned property	12	.....	146	.....
letter from the Secretary of War, relating to the claim of Noland, Topp, Vance, and others for, taken from them	17	.....	269	.....
Courts-martial, letter from the Secretary of War, transmitting draught of bill giving to general, jurisdiction of the crimes of murder, manslaughter, &c	16	.....	230	.....
Crimes, letter from the Secretary of the Interior, transmitting draught of bill conferring exclusive jurisdiction over Indian reservations upon the United States courts, and for the punishment of, committed by Indians	12	.....	200	.....
Currency, annual report of the Comptroller of the	6	.....	3	1
Papers accompanying the above:				
Appendixes, with reference to same	6	.....	3	43
Reports of the condition of national banking associations	6	.....	3	55
Index of towns	6	.....	3	729
Custom-house officers, letter from the Postmaster-General, in answer to a resolution of the House, relative to allowing any, or detective to examine correspondence passing through the New York and Boston post-offices	8	.....	29	.....
Customs duties and internal taxes refunded, letter from the Secretary of the Treasury, in answer to a resolution of the House, transmitting statement of amount refunded on account of	15	.....	211	.....
D.				
Dakota Indian war-claims, letter from the chief clerk of War Department, transmitting report of Inspector-General James A. Hardie upon the subject of	17	.....	286	.....
Deaf and Dumb, annual report of the Columbia Institution for the	4	5	1	773
Debt, letter from the Secretary of the Treasury, in answer to a resolution of the House, transmitting statements in relation to refunding the national	12	.....	207	.....
Deficiencies, letter from the Secretary of the Interior, transmitting an estimate of, to supply the clerical force of Pension Bureau for current fiscal year	8	.....	27	.....
letter from the Secretary of the Treasury, transmitting estimates of, in appropriations to complete the service of fiscal year ending June 30, 1874	12	.....	150	.....
letter from the Secretary of War, transmitting statement of, in the appropriation for his Department for fiscal year ending June 30, 1873	12	.....	203	.....
Delaware, letter from the Secretary of War, relative to proposed construction of a powder-magazine on old Lazaretto tract, near Fort Mifflin, in the State of	9	.....	105	.....
Denniston, William H., message from the President, returning with his objections the bill for relief of	12	.....	210	.....
Deputy surveyors, letter from the Secretary of the Interior, transmitting petition of, of public lands asking for an appropriation	15	.....	218	.....
Disbursing officers, letter from the Secretary of War, in relation to a number of accounts of, of the Army still unsettled	9	.....	107	.....
District of Columbia, report of the board of public works of the	5	6	1	.....
letter from the Secretary of the Interior, relative to a deficiency in the appropriation for the erection of buildings for the Reform School of the	8	.....	47	.....

Digitized by Google

Subject.	Vol.	Part.	No.	Page
District of Columbia, letter from the Secretary of War, transmitting report on contract with Providence Hospital of the, for the treatment of transient paupers	9		68	
letter from the Secretary of War, relative to date of the President's proclamation declaring martial law within the	10		140	
letter from the Secretary of War, relative to House bill No. 1574, to aid in the construction of a fire-alarm telegraph in the	12		190	
letter from the Secretary of the Interior, relative to an additional appropriation to complete the new jail in and for the	17		279	
message from the President, relative to the payment of the debts of the	17		288	
Duclosel, Charles Oliver, letter from the Secretary of the Interior, relative to the case of	17		283	
Duties, letter from the Secretary of the Treasury, in answer to a resolution of the House, transmitting statement of the amount of, collected and paid on all goods, wares, and merchandise specified in act of June 6, 1872	9		116	
letter from the Secretary of the Treasury, relative to refunding, on green fruits	16		248	
E.				
Eight-hour law, letter from the Secretary of the Treasury, in answer to resolution of the House in relation to the decisions of the Second Comptroller of the Treasury based upon the	9		72	
letter from the Secretary of the Treasury, relative to the operation of the	9		117	
Employés Internal Revenue Bureau, letter from the Secretary of the Treasury, in answer to a resolution of the House, transmitting statement of number and compensation of the	9		99	
Episcopal Board of Missions, letter from the Secretary of the Interior, transmitting draught of bill to secure eighty acres of land in White Earth reservation of Chippewa Indians, to the	9		94	
Estimates of appropriations. (See Appropriations.)				
Examination of mail-matter by custom-house officers, letter from the Postmaster-General, relative to, passing through the New York and Boston post-offices	8		29	
Executive communications, letter from the Secretary of War, relative to the course pursued by his Department in addressing to the Speaker communications intended for consideration of any of the committees of the House	12		171	
Expense of transportation, message from the President, relative to expenses incurred by the various Departments for transportation of matter which before the abolition of the franking privilege was carried in the mails	12		173	
Expenses of the Indian service, letter from the Secretary of the Interior, transmitting detailed statement of amount of indebtedness incurred and moneys expended in connection with the Indian service	12		142	
F.				
Falls of Saint Anthony, letter from the Secretary of War, relative to an appropriation for the preservation of the	8		4	
Farrell, R. F., message from the President, transmitting a letter from the Secretary of State, with papers in the case of, late consul, &c	9		11	

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
Finances, report of the Secretary of the Treasury on the, for the year 1873	5	.....	2	.....
index of the above report	5	.....	2	701
Fines, penalties, and forfeitures, letter from the Secretary of the Treasury, transmitting statement of, collected in the districts of Boston and New York	7	.....	187	.....
Fire-alarm telegraph, letter from the Secretary of War, relative to House bill No. 1574, to aid in the construction of a in the District of Columbia	12	.....	190	.....
Florida, letter from the Secretary of War, in answer to a resolution of the House, transmitting report of survey of the Flint and Chattahoochee Rivers, in the State of	9	.....	65	.....
Foreign relations, message of the President of the United States, transmitting papers relating to the, of the United States, vols. 1, 2, and 3 of	1	1	1	.....
table of contents of vol. 1	1	1	1	3
table of contents of vol. 2	1	1	1	3
index of vol. 3	1	1	1	218
Forfeited railroad lands, letter from the Secretary of the Interior, relative to pine timber included within	17	.....	260	.....
Fortifications, letter from the Secretary of War, transmitting estimates for armaments of	9	.....	69	.....
Fort Bridger, letter from the Secretary of War, transmitting report of a board of arbitrators for the appraisement of certain buildings on the military reservation of	9	.....	71	.....
Fort Butler, letter from the Secretary of War, in relation to joint resolution of the House No. 55, respecting the military reservation of	12	.....	180	.....
Fort Reynolds, letter from the Secretary of War, relative to the sale of the military reservation of	8	.....	51	.....
Fort Wilkins, letter from the Secretary of War, relative to the relinquishment of, in Michigan	12	.....	176	.....
Forts and batteries, letter from the Secretary of War, transmitting statement showing amount of appropriations which have been or will be expended on each of the, from commencement of work to present time	8	.....	32	.....
Franking privilege, letter from the Secretary of the Treasury, in answer to a resolution of the House, in relation to the abolition of the	8	.....	28	.....
letter from the Attorney-General, in answer to a resolution of the House, in relation to expenses incurred by the abolition of the	8	.....	31	.....
letter from the Secretary of State, in answer to a resolution of the House, transmitting statement of expenses incurred by the abolition of the	8	.....	48	.....
letter from the Postmaster-General, relative to the expenses incurred by his Department upon the abolition of the, &c.	9	.....	59	.....
letter from the Secretary of the Interior, in answer to a resolution of the House, in relation to the expenses incurred in his Department by the abolition of the	9	.....	73	.....
letter from the Secretary of the Navy, in answer to a resolution of the House, transmitting a statement of the expenses incurred by his Department in consequence of the abolition of the	9	.....	77	.....
letter from the Secretary of War, in answer to a resolution of the House, relative to expenses incurred by the abolition of the	12	.....	188	.....
Fruits, letter from the Secretary of the Treasury, relative to refunding duties on green	16	.....	248	.....

Digitized by Google

Subject.	Vol.	Part.	No.
G.			
General of the Army, report of the (vol. 1)	2	2	1
General Orders No. 32, letter from the Secretary of War, referring to resolution of the House to examine and report as to the War Department, Adjutant-General's Office, March 15, 1873	17	.....	275
Geological and geographical survey of the Territories, letter from the Secretary of the Interior, transmitting estimate for continuation of the	8	.....	26
Geological and geographical survey of the Territories, letter from the Secretary of the Interior, relating to an estimate of appropriation for the continuation of the	9	.....	74
Geographical and geological surveys west of Mississippi, message from the President, in answer to resolution of the House, transmitting report from the Secretary of War, relative to	16	.....	240
Georgia, letter from the Secretary of War, relative to purchase of ground for barracks at Atlanta	12	.....	182
letter from the Secretary of War, in answer to resolution of the House in relation to the survey of the Oostenaula and Coosawatta Rivers, in the State of	12	.....	196
Griggs, George W., letter from the Secretary of War, relative to bill of the House for payment of claim of	16	.....	225
Guns, letter from the Secretary of War, transmitting an inclosed letter from Norman Wiard, proposing experiments in ordnance, and for making and testing new guns of large caliber	12	.....	191
H.			
Harbor, letter from the Secretary of War, relative to the survey of the, of Plymouth, Mass	12	.....	161
letter from the Secretary of War, relative to an examination of the wreck of the ship Patrician and Noonday Rock, at the entrance to the, of San Francisco	12	.....	189
letter from the Secretary of War, relative to an appropriation for the improvement of Galveston, Tex	10	.....	136
letter from the Secretary of War, relative to an appropriation to repair the pile-work on the west side of Ontonagon	12	.....	151
letter from the Secretary of War, relative to the condition of the, at Kenosha, Wis	12	.....	162
Harbors, letter from the Secretary of War, transmitting certain reports of examination of rivers and, under act of March 3, 1873	9	.....	84
Harbor of refuge, letter from the Secretary of War, transmitting report showing progress of work on, at the mouth of Sturgeon Bay and Lake Michigan Ship-Canal	9	.....	104
Horn Island military reservation, letter from the Secretary of War, relative to the sale of the, in Gulf of Mexico	12	.....	184
Hot Springs, letter from the Secretary of the Interior, in answer to a resolution of the House, in relation to the, Arkansas	17	.....	273
Howard, O. O., Gen., letter from the Secretary of War, transmitting certain developments connected with the late Bureau of Refugees, Freedmen and Abandoned Lands	8	.....	10
letter from the Secretary of War, transmitting certain additional developments connected with the late Bureau of Refugees, Freedmen and Abandoned Lands	8	2	10

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
Hartt, F. N., Capt., letter from the Secretary of War, relative to the case of, A. Q. M., U. S. Vols.	16	.....	225	.....
letter from the Secretary of War, transmitting additional papers in court-martial case of	16	2	255	.....
I.				
Idaho, letter from the Secretary of the Interior, relative to an agreement concluded November 7, 1873, with Bannack and other Indians in Southern	10	.....	129	.....
Illinois, letter from the Secretary of the Treasury, relative to an appropriation for purchase of lot on which has been erected a public building at Springfield	17	.....	262	.....
Immigration, letter from the Chief of Bureau of Statistics, in relation to printing in the Swedish language his special report on	17	.....	287	.....
Indiana, letter from the Secretary of War, in answer to a resolution of the House, relative to the survey of the Grand Calumet River, in the State of	8	.....	17	.....
Indian Affairs, annual report of the Commissioner of.....	4	5	1	369
Indian commissioners, letter from the Secretary of the Interior, transmitting communication from secretary of the board of, relative to pay of said board from unexpended balance of appropriation	10	.....	125	.....
Indians, letter from the Secretary of the Interior, transmitting agreements with the Cheyenne and Arapaho, for the relinquishment of the reservation provided for them	8	.....	12	.....
letter from the Secretary of the Interior, transmitting draught of a bill for sale of Kansas Indian lands	8	.....	20	.....
letter from the Secretary of the Interior, transmitting draught of a bill relative to investments of certain funds belonging to the Prairie band of Pottawatomie	8	.....	21	.....
letter from the Secretary of the Interior, transmitting estimate of appropriation to subsist the Modoc	8	.....	22	.....
letter from the Secretary of the Interior, transmitting special estimate of appropriations for subsistence for Indian tribes in the Indian Territory.	8	.....	23	.....
letter from the Secretary of the Interior, transmitting draught of a bill for the civilization of, of the Central Superintendency.....	8	.....	24	.....
letter from the Secretary of the Interior, transmitting estimate of appropriation for educational purposes for the Sac and Fox, of Missouri.....	8	.....	37	.....
letter from the Secretary of the Interior, transmitting draught of a bill to establish a reservation for certain, in Montana	8	.....	38	.....
letter from the Secretary of the Interior, transmitting draught of a bill for removal of Kickapoo and other, from Texas and Mexico.....	8	.....	39	.....
letter from the Secretary of the Interior, transmitting estimates of appropriations to aid, of Northern Superintendency in arts of civilized life.....	8	.....	40	.....
letter from the Secretary of the Interior, transmitting estimate of appropriation for collecting and subsisting the Apache, in Arizona and New Mexico.....	8	.....	41	.....
letter from the Secretary of the Interior, transmitting estimate of appropriation to indemnify the Pawnee, for 4,800 acres of land.....	8	.....	42	.....
letter from the Secretary of the Interior, transmitting draught of a bill for relief of certain tribes of, in the Northern superintendency	8	.....	43	.....

Digitized by Google

Subject.	Vol.	Part.	No.
Indians, letter from the Secretary of the Interior, transmitting an estimate of appropriations required to fulfill treaty stipulations with Winnebago, of Nebraska	8	.....	44
letter from the Secretary of the Interior, transmitting an estimate of appropriation for the removal of the Kansas tribe of	8	.....	45
letter from the Secretary of the Interior, in relation to an agreement concluded with the Ute, in Colorado, September 13, 1873	8	.....	53
letter from the Secretary of the Interior, transmitting draught of a bill to authorize the Secretary of the Interior to use unexpended balances for the Indian service	8	.....	54
letter from the Secretary of the Interior, transmitting draught of a bill making available certain balances of funds to be used for the civilization of the Pawnee	8	.....	55
letter from the Secretary of the Interior, transmitting draught of a bill providing for the manner of paying annuities to Indian tribes	8	.....	56
letter from the Secretary of the Interior, relative to articles of convention concluded with Shoshone and Bannock, for relinquishment of a portion of their reservation	9	.....	61
letter from the Secretary of the Interior, transmitting draught of a bill for the relief of the Choctaw and Chickasaw	9	.....	73
letter from the Secretary of the Interior, transmitting estimate of appropriation for employment of a carpenter and shoemaker at Pawnee agency, in Nebraska	9	.....	75
letter from the Secretary of the Interior, transmitting statement of indebtedness on account of collecting upon reservations and subsisting the Apache, in Arizona and New Mexico	9	.....	86
letter from the Secretary of the Interior, relative to an agreement concluded with the Crow tribe of, under act of April 23, 1872	9	.....	89
letter from the Secretary of the Interior, transmitting estimate of appropriation for removing the Kickapoo and other roaming bands of, from Mexico to Indian Territory	9	.....	90
letter from the Secretary of the Interior, transmitting report of special agent appointed to visit Mission, of Southern California	9	.....	91
letter from the Secretary of the Interior, transmitting estimate of appropriation to defray expenses of survey of Indian reservations	9	.....	92
letter from the Secretary of the Interior, transmitting estimate of appropriation to defray expenses of holding a general council of Cherokee, Creek, &c	9	.....	93
letter from the Secretary of the Interior, transmitting draught of a bill to secure eighty acres of land in White Earth reservation of the Chippewa, to the Episcopal Board of Missions	9	.....	94
letter from the Secretary of the Interior, transmitting draught of a bill to provide for establishing a reservation for the, of the Colville agency, and for the Cœur d'Alene	9	.....	100
letter from the Secretary of the Interior, transmitting draught of a bill to amend acts of June 30, 1834, and February 13, 1862, to regulate trade and intercourse with Indian tribes	9	.....	101

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
Indians, letter from the Secretary of the Interior, transmitting estimate of appropriation for purchase from Omaha, in Nebraska, such quantity of land as may be required for the Winnebagoes in Wisconsin	9	.....	109	.....
letter from the Secretary of the Interior, relative to leasing or selling a portion of the Allegany Indian reservation, in the State of New York	9	.....	110	.....
letter from the Secretary of the Interior, transmitting draught of a bill amendatory of the act to restore a part of Round Valley Indian reservation	9	.....	118	.....
letter from the Secretary of the Interior, transmitting an estimate of appropriation to pay improvements by settlers on lands set apart for Makah	9	.....	119	.....
message from the President, transmitting copies of correspondence and papers relative to the war with the Modoc	9	.....	122	.....
letter from the Secretary of the Interior, relative to the extent and nature of the contracts, purchases, and expenditures for Indian service made since July 1, 1873	10	.....	123	.....
letter from the Secretary of the Interior, relative to an agreement concluded November 7, 1873, with Bannack and other, in Southern Idaho	10	.....	129	.....
letter from the Secretary of the Interior, transmitting an agreement with the Jicarilla Apaches and certain Ute, in New Mexico	10	.....	130	.....
letter from the Secretary of the Interior, transmitting draught of a bill amendatory of the act making appropriations for the Indian Department for year ending June 30, 1849	10	.....	135	.....
letter from the Secretary of the Interior, transmitting a detailed statement of amount of moneys expended and indebtedness incurred in connection with Indian service from June 30, 1873, to December 31, 1873	12	.....	142	.....
letter from the Secretary of the Interior, transmitting report showing the necessity existing for legislation in behalf of Mission, in California	12	.....	156	.....
letter from the Secretary of the Interior, in relation to the condition and wants of the Ute, of Utah, the Pi-Utes, of Utah, Northern Arizona, Southern Nevada, and Southwestern California; the Go-si-Utes, of Utah and Nevada; the Northwestern Shoshones, of Idaho and Utah, and Western Shoshones, of Nevada	12	.....	157	.....
letter from the Secretary of the Interior, relative to an appropriation to aid the, in Shasta County, California	12	.....	158	.....
letter from the Secretary of the Interior, relative to estimate of an appropriation for settlement and support of the Kansas, on their new reservation	12	.....	167	.....
letter from the Secretary of the Interior, relative to an appropriation for relief of the Flathead, in Montana	12	.....	168	.....
letter from the Secretary of the Interior, transmitting draught of a bill authorizing the Secretary of the Interior to use funds from sale of lands for benefit of Osage	12	.....	169	.....
letter from the Secretary of the Interior, recommending an amendment of existing laws, fixing a minimum penalty for their violation in selling liquor to	12	.....	177	.....
letter from the Secretary of the Interior, transmitting the claim of John Watts for depredations committed by Comanche	12	.....	181	.....

Digitized by Google

Subject	Vol.	Part.	No.
Indians, letter from the Secretary of War, transmitting papers showing cost to the Quartermaster's Department of the Modoc war	12	.....	185
letter from the Secretary of the Interior, relative to an appropriation for subsisting the Red Cloud and Whetstone Indian agencies	12	.....	186
letter from the Secretary of the Interior, transmitting draught of a bill conferring exclusive jurisdiction over Indian reservations upon the United States courts, and for punishment of crimes committed by or against	12	.....	200
letter from the Secretary of the Interior, relative to an appropriation to relieve necessities of the Chippewa, of Red Cliff and Bad River reservations	12	.....	201
letter from Acting Secretary of the Interior, relative to a treaty made with Cherokee and Chickasaw, April 28, 1866	15	.....	212
letter from the Secretary of the Interior, recommending an amendment of bill of the House No. 2343, for appointment of a superintendent of education for the Indian Territory	16	.....	227
letter from the Secretary of the Interior, transmitting draught of a bill to enable, to become citizens of the United States	16	.....	228
letter from the Secretary of the Interior, relative to an appropriation to subsist certain Kickapoo	16	.....	236
letter from the Secretary of the Interior, transmitting draught of bill for regulating bids for Indian goods	16	.....	238
letter from the Secretary of the Interior, relative to an appropriation to meet outstanding indebtedness of the Indian service in California	16	.....	243
letter from the Secretary of the Interior, relative to an appropriation for relief of Stockbridge and Munsee tribe of, in Wisconsin	16	.....	244
letter from the Secretary of the Interior, submitting estimate of appropriation for subdivision of White Earth reservation, in Minnesota	16	.....	246
letter from the Secretary of the Interior, submitting estimates to pay Osage, interest on net avails of land sold under treaty	16	.....	247
letter from the chief clerk of War Department, transmitting report of Inspector-General James A. Hardie, U. S. A., upon the subject of the Dakota Indian war-claims of 1862	17	.....	286
Insane, annual report of the Government Hospital for the	4	5	1
Interior Department, letter from the Secretary of the Interior, relative to an increase of the clerical force in the	8	.....	14
Interior, Secretary of the, annual report of the	4	5	1
Papers accompanying the above:			
Annual report of the Commissioner of the General Land-Office	4	5	1
Annual report of the Commissioner of Pensions	4	5	1
Annual report of the Commissioner of Indian Affairs	4	5	1
Papers accompanying the report of the Commissioner of Indian Affairs	4	5	1
Report of the Superintendent of the Census	4	5	1
Report of the Architect of the Capitol Extension	4	5	1
Annual report of the Columbia Institution for the Deaf and Dumb	4	5	1
Annual report of Government Hospital for the Insane	4	5	1
Interior, Secretary of, transmits agreements with the Cheyenne and Arapaho Indians	8	.....	12

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
Interior, Secretary of, transmits estimates of appropriations to supply a deficiency in the appropriation for building a penitentiary in Wyoming Territory	8	.....	13	.....
communicates relative to an increase of the clerical force in his Department	8	.....	14	.....
transmits draught of a bill for the sale of Kansas Indian lands in Kansas	8	.....	20	.....
transmits draught of bill relative to investment of certain funds belonging to Prairie band of Pottawatomie Indians	8	.....	21	.....
transmitting estimate of appropriation to subsist the Modoc Indians	8	.....	22	.....
transmitting a special estimate of appropriations required to purchase subsistence for Indian tribes in the Indian Territory	8	.....	23	.....
transmits draught of a bill for the civilization of Indians of the Central superintendency	8	.....	24	.....
transmits report of commissioners to examine lands in Iowa, above the Racoon Fork of the Des Moines River, &c	8	.....	25	.....
transmits estimate of appropriations to supply deficiencies for the clerical force of the Pension Bureau	8	.....	27	.....
transmitting estimate of appropriation for continuation of geological and geographical survey of the Territories	8	.....	26	.....
transmits estimate of appropriation for educational purposes for Sac and Fox Indians of the Missouri	8	.....	37	.....
transmits draught of a bill to establish a reservation for certain Indians in the Territory of Montana	8	.....	38	.....
transmits draught of a bill and estimates of appropriation for removal of Kickapoo and other Indians from Texas and New Mexico	8	.....	39	.....
transmits estimates of appropriations to aid the Indians of the Northern superintendency in arts of civilized life	8	.....	40	.....
transmits estimate of appropriation for collecting and subsisting the Apache Indians in Arizona and New Mexico	8	.....	41	.....
transmits estimate of appropriation to indemnify the Pawnee Indians for 4,800 acres of land	8	.....	42	.....
transmits draught of a bill for relief of certain tribes of Indians in the Northern superintendency	8	.....	43	.....
transmits estimate of appropriations required to fulfill treaty obligations with Winnebago Indians of Nebraska	8	.....	44	.....
transmits estimate of appropriation for removal of the Kansas tribe of Indians to the Indian Territory	8	.....	45	.....

Digitized by Google

Subject.	Vol.	Part.	No.
Interior, Secretary of, communicates relative to a deficiency in the appropriation for the erection of buildings for the Reform School in the District of Columbia.	8	.....	47
communicates relative to an agreement concluded with the Ute Indians, in Colorado, September 13, 1873	8	.....	53
transmits draught of a bill making available certain unexpended balances of funds to be used for the civilization of the Pawnee Indians.	8	.....	55
transmits draught of a bill to authorize the, to use certain unexpended balances of appropriation for the Indian service	8	.....	54
transmits draught of a bill providing for the manner of paying annuities to Indian tribes under treaties	8	.....	56
communicates relative to certain private land-claims in Louisiana	9	.....	60
communicates relative to articles of convention concluded with Shoshone and Bannock Indians for relinquishment of a portion of their reservation in Wyoming Territory.	9	.....	61
communicates answer to resolution of the House in relation to the expenses incurred in his Department by the abolition of the franking privilege	9	.....	73
communicates in relation to an estimate of appropriation for continuation of geological and geographical survey of the Territories	9	.....	74
transmits draught of a bill for relief of the Choctaw and Chickasaw Indians	9	.....	75
transmits estimate of appropriation for the employment and support of a carpenter and shoemaker at the Pawnee agency, in Nebraska	9	.....	79
transmits statement of indebtedness on account of collecting upon reservations and subsisting Apache Indians in Arizona and New Mexico.	9	.....	80
communicates relative to an agreement concluded with the Crow tribe of Indians, in accordance with act of April 23, 1872	9	.....	89
transmits estimate of appropriation for removing the Kickapoo and other roaming bands of Indians from Mexico to the Indian Territory	9	.....	90
transmits report of special agent appointed to visit the Mission Indians of Southern California	9	.....	91
transmits estimate of appropriation required to defray expenses incident to the survey of Indian reservations during coming fiscal year.	9	.....	9[illegible]
transmits estimate of appropriation required for holding a general council of Cherokee, Creek, &c., as provided by treaties with said Indians	9	.....	9[illegible]

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
Interior, Secretary of, transmits draught of a bill to secure eighty acres of land in White Earth reservation of Chippewa Indians, in Minnesota, to the Episcopal Board of Missions	9	.....	94	.....
transmits reports relative to the Union Pacific Railroad	9	.....	95	.....
answers resolutions of the House, relative to the number of pension-agents appointed under existing laws, &c	9	.....	97	.....
transmits draught of a bill to provide for a reservation for the Indians of the Colville agency, and for Cœur d'Alène Indians, of the Territory of Idaho, &c	9	.....	102	.....
transmits draught of bill to amend acts of June 30, 1834, and February 13, 1862, to regulate trade and intercourse with various Indian tribes	9	.....	108	.....
transmits estimate of appropriation for the purchase from Omaha Indians, in Nebraska, such quantity of land as may be required for Winnebago Indians in Wisconsin	9	.....	109	.....
the Acting Secretary communicates relative to leasing or selling a portion of the Allegany reservation, in the State of New York	9	.....	110	.....
transmits draught of bill to amend act to restore a part of Round Valley Indian reservation, in California, to public lands	9	.....	118	.....
transmits estimate of appropriation to pay for improvements by settlers on lands set apart for Makah Indians	9	.....	119	.....
transmits communication from the secretary of the board of Indian commissioners, relative to pay from unexpended balance of appropriations	10	.....	125	.....
communicates relative to an agreement concluded November 7, 1873, with Bannock and other Indians in Southern Idado	10	.....	129	.....
transmits an agreement with the Jicarilla Apache and certain Ute Indians in the Territory of New Mexico	10	.....	130	.....
transmits draught of a bill amending the act making appropriations for the Indian Department for year ending June 30, 1849	10	.....	135	.....
transmits detailed statement of the amount of moneys expended and indebtedness incurred in connection with the Indian service from June 30, 1873, to December, 1873, &c	12	.....	142	.....
transmits draught of bill amendatory of and supplementary to the act to set apart land for Yellowstone Park	12	.....	147	.....

Digitized by Google

Subject.	Vol.	Part.	No.	P
Interior, Secretary of, transmits the transcript of private land-claim reported as No. 77, in the name of Ojo Caliente, in Rio Arriba County, New Mexico	12	.....	148	
transmits the transcript of the land-grant to Antonio Chaves, being private land-claim reported as No. 79	12	.....	149	
transmits a report showing the necessity existing for legislation in behalf of Mission Indians, in California	12	.....	156	
communicates relative to the condition and wants of the Ute Indians, of Utah; the Pi-Utes, of Utah, Northern Arizona, Southern Nevada, and Southeastern California; the Go-si-Utes, of Utah and Nevada; Northwestern Shoshones, of Idaho and Utah, and the Western Shoshones, of Nevada	12	.....	157	
communicates relative to an appropriation to aid the Indians in Shasta County, California	12	.....	158	
communicates relative to an appropriation for relief of the Flathead Indians, in Montana	12	.....	168	
communicates relative to an estimate of appropriation required for the settlement and support of Kansas Indians on their new reservation	12	.....	16	
transmits draught of a bill authorizing the, to use funds from sale of lands for the benefit of the Osage Indians	12	.....	16	
transmits amendment to existing laws, fixing a minimum penalty for their violation in selling liquor to Indians	12	.....	1	
transmits the claim of John Watts for depredations committed by Comanche Indians	12	.....	1	
communicates relative to an appropriation for subsisting the Red Cloud and Whetstone Indian agencies	12	.....		
transmits draught of a bill conferring exclusive jurisdiction over Indian reservations upon the United States courts, and for the punishment of crimes committed by and against Indians	12	.....		
communicates relative to an appropriation to relieve the necessities of the Chippewa Indians attached to Red Cliff and Bad River reservations, in Wisconsin	12	.....		
transmits three reports of the surveyor-general of New Mexico on private land-claims in said Territory	12	.....		
communicates relative to a treaty made with the Choctaw and Chickasaw Indians, April 28, 1866	15	.....		

Digitized by Google

Subject.	Vol.	Part.	No.	
Interior, Secretary of, transmits the report of the surveyor-general of New Mexico on the land-grant to Juan de Mestas, private land-claim reported as No. 80	15	.....	213	.....
transmits petition of deputy surveyors of public lands asking for an appropriation	15	.....	218	.....
communicates relative to an appropriation required for the Navy pensions during remainder of current fiscal year	16	.....	226	.....
recommends an amendment of House bill No. 2343, providing for the appointment of a superintendent of education for Indian Territory	16	.....	227	.....
transmits draught of a bill to enable Indians to become citizens of the United States	16	.....	228	.....
communicates relative to an appropriation to subsist certain Kickapoo Indians during the current fiscal year	16	.....	236	.....
transmits draught of a bill for regulating bids for Indian goods	16	.....	238	.....
transmits report of the surveyor-general of New Mexico on the Santa Fé City land-claim, being private land-claim reported as No. 88	16	.....	239	.....
transmits private land-claim of Francis Vallè, jr	16	.....	241	.....
communicates relative to an appropriation to meet ontstanding indebtedness of the Indian service in California	16	.....	243	.....
communicates relative to private land-claim of John Baptiste Vallè and Francis Vallè, sr	16	.....	242	.....
communicates relative to an appropriation for relief of the Stockbridge and Munsee tribe of Indians, in Wisconsin	16	.....	244	.....
submits estimate of appropriation for subdivision of White Earth reservation, in Minnesota	16	.....	246	.....
submits estimates to pay to Osage Indians interest on net avails of lands sold under treaty of September 29, 1865	16	.....	247	.....
transmits report of the surveyor-general of New Mexico on land-grant, being private land-claim No. 87	17	.....	258	.....
communicates relative to pine-timber included within forfeited or lapsed railroad-grants	17	.....	260	.....
transmits answer to resolution of the House in relation to the Hot Springs, Arkansas	17	.....	273	.....
communicates relative to an additional appropriation to complete the new jail for the District of Columbia	17	.....	279	.....
transmits report of the surveyor-general of New Mexico on the private land-claim of Francisco Montes Vigil, reported as No. 91	17	.....	280	.....

Digitized by Google

Subject.	Vol.	Part.	No.
Interior, Secretary of, communicates relative to the claim of Charles Oliver Duclosel	17	.....	283
communicates relative to the claim of B. Soulie	17	.....	284
Internal Revenue, annual report of the Commissioner of	6	.....	4
index of the above	6	.....	4
letter from the Secretary of the Treasury, in answer to resolution of the House, transmitting statement showing the number of persons employed in the Bureau of, and compensation paid them, December 1, 1866, and December 1, 1873	9	.....	99
Internal taxes, letter from the Secretary of the Treasury, transmitting, in answer to a resolution of the House, a statement of amount of money refunded, from March 4, 1873, to January 8, 1874, on account of customs-duties and	15	.....	211
Irrigation, message from the President, transmitting papers relating to, of the San Joaquin, Tulare, and Sacramento Valleys, California	17	.....	290
Iowa, letter from the Secretary of the Interior, transmitting report of commissioners to examine lands in, above the Raccoon Fork of the Des Moines River	8	.....	25
letter from the Secretary of War, relative to the removal of the north pier of the old railroad-bridge of the Chicago, Rock Island and Pacific Railroad, at Davenport	9	.....	83
J.			
Jail, letter from the Secretary of the Interior, relative to an additional appropriation to complete the new, authorized to be constructed in and for the District of Columbia	17	.....	279
James River and Kanawha Canal, letter from the Secretary of War, in answer to resolution of the House, transmitting report upon the project for the	15	.....	219
K.			
Kansas, letter from the Secretary of the Interior, transmitting bill providing for the sale of the Kansas Indian lands in	8	.....	20
letter from the Secretary of the Interior, transmitting estimate of appropriation for removal of the Kansas Indians to the Indian Territory	8	.....	45
Kelly, Frank M., letter from the Secretary of War, transmitting draught of a bill for relief of, private Company F, First Cavalry	8	.....	16
King, William F., Sergeant-major, letter from chief clerk of the War Department, transmitting draught of a bill to authorize an issue of clothing to	17	.....	263
L.			
Lake Huron and Lake Erie, letter from the Secretary of War, transmitting report of a board of engineers, relative to the practicability of bridging the channels between	9	.....	64
letter from the Secretary of War, in answer to resolution of the House, relative to an estimate of expense of deepening and widening the navigable channel of the rivers connecting	9	.....	81

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
Land-Office, annual report of the Commissioner of the General, (vol. 1, of)	4	5	1	1
Lands, public, letter from the Secretary of War, relative to bill of the House 2298, to restore certain lands in California to homestead and pre-emption settlement	12	.....	205	.....
letter from Acting Secretary of the Interior, transmitting petition of deputy surveyors of, asking for an appropriation	15	.....	218	.....
Life-saving stations, letter from the Secretary of the Treasury, relative to act of March 3, 1873, to provide for the establishment of, on the coasts of Maine, New Hampshire, Massachusetts, Virginia, and North Carolina	9	.....	103	.....
Liquor, letter from the Secretary of the Interior, recommending an amendment to existing laws fixing a minimum penalty for their violation in selling, to Indians	12	.....	177	.....
Loans, letter from the Secretary of the Treasury, transmitting a statement of temporary, authorized by acts of February 25, March 17, and July 11, 1862, and June 30, 1864	9	.....	58	.....
Long, James W., letter from the Secretary of War, relative to the bill of the House No. 1701, for the relief of	12	.....	175	.....
Louisiana, letter from the Secretary of the Interior, relative to private land-claims in	9	.....	60	.....
letter from the Secretary of War, in answer to a resolution of the House, relative to the examination of the channel in Berwick Bay, at the mouth of the Atchafalaya River, within the State of	9	.....	82	.....
Lower Mississippi River, letter from the Secretary of War, transmitting estimate of appropriation for the purpose of furnishing food to destitute persons on the	16	.....	231	.....
M.				
Mail-matter, letter from the Postmaster-General, in answer to resolution of the House, relative to examination of, passing through the New York and Boston post-offices	8	.....	29	.....
Mails, letter from the President, relative to expenses incurred by the various Departments for transportation of any matter which before the abolition of the franking privilege was carried in the	12	.....	173	.....
Maloney, G. L., letter from the Secretary of War, transmitting information relative to the claim of	12	.....	170	.....
Mare Island navy-yard, letter from the Secretary of the Navy, in answer to resolution of the House, relative to the necessity for a better supply of fresh water and for improved roads at the	12	.....	199	.....
Martial-law, District of Columbia, letter from the Secretary of War, relative to the date of the President's proclamation declaring	10	.....	140	.....
Massachusetts, letter from the Secretary of War, relative to the survey of Plymouth Harbor	12	.....	161	.....
McColley, Hiram H., letter from the Secretary of War, relative to the claim of	16	.....	251	.....
Mead, James R., and Joab Spencer, message from the President, returning without his approval bill H. R. No. 1331, for the relief of	16	.....	249	.....
Michigan, letter from the Secretary of War, in answer to a resolution of the House, transmitting a report of the survey and estimate of cost for the improvement of Saginaw River	9	.....	120	.....
letter from the Secretary of War, relative to the relinquishment of Fort Wilkins	12	.....	176	.....
letter from the Secretary of War, relative to the military reservation at Fort Wilkins	17	.....	268	.....

Digitized by Google

Subject.	Vol.	Part.
Military Academy, letter from the Secretary of War, relative to the admission of Argentine students at the	16	
Military expenditures, letter from the Secretary of War, transmitting statement showing the appropriations for the military service for preceding year	16	
Military prisons, letter from the Secretary of War, transmitting report upon	8	
Military reservation, letter from the Secretary of War, transmitting report of a board of arbitrators convened for appraising the valuation of certain buildings on the, of Fort Bridger	9	
letter from the Secretary of War, relative to the Rush Valley, Utah Territory	9	
letter from the Secretary of War, relative to House bill No. 773, to reduce Fort Sanders	12	
letter from the Secretary of War, relative to bill for relief of settlers on the Fort Randall	12	
letter from the Secretary of War, relative to joint resolution of the House No. 55, respecting the, at Fort Butler	12	
letter from the Secretary of War, relative to the sale of Horn Island, in the Gulf of Mexico	12	
letter from the Secretary of War, relative to the present condition of Presidio	12	
letter from the Secretary of War, relative to bill of the House No. 1479, to restore the Rush Valley, in Utah, to the public lands	12	
letter from the Secretary of War, relative to the, at Fort Wilkins, Michigan	17	
Military sites, letter from the Secretary of War, relative to the purchase of, in Texas	17	
Military telegraph, letter from the Secretary of War, relative to the want of a law affixing a penalty for tampering with the, in Arizona	9	
letter from the Secretary of War, relative to the cost of, in Texas	12	
Military wagon-road, letter from the Secretary of War, relative to the construction of a, from Wallula to Seattle, Washington Territory	8	
Militia, letter from the Secretary of War, transmitting statement showing amounts due or overdrawn by the several States under the law for arming the, on the 22d January, 1874; also annual report of Chief of Ordnance for year ending June 30, 1871	9	
Miller, George A., and G. L. Maloney, letter from the Secretary of War, in relation to the claims of	17	
Mines and mining, report of Prof. R. W. Raymond on	10	
Minnesota, letter from the Secretary of the Interior, transmitting draught of a bill to secure eighty acres of land in the White Earth reservation, Chippewa Indians, to the Episcopal Board of Missions, State of	9	
letter from the Secretary of the Interior, submitting estimate of appropriations for subdivision of White-Earth reservation in	16	

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
Modoc Indians, letter from the Secretary of the Interior, transmitting estimate of appropriation to subsist the	8	.....	22	.....
message from the President, transmitting copies of correspondence and papers relative to the war with the	9	.....	122	.....
Modoc war, letter from the Secretary of War, transmitting papers showing the cost to the Quartermaster's Department of the	12	.....	185	.....
Montana, letter from the Secretary of the Interior, transmitting draught of a bill to establish a reservation for certain Indians in the Territory of	8	.....	38	.....
letter from the Secretary of the Interior, relative to an appropriation for the relief of Flathead Indians in	12	.....	168	.....
Mott, Wallace, Lieut., letter from the Secretary of War, relative to proceedings of a board of officers convened at Camp Douglas, Utah Territory, to investigate and report upon the loss by fire, for which, is responsible	17	.....	278	.....
Murder, letter from the Secretary of War, transmitting draught of a bill giving general courts-martial jurisdiction of the crimes of, manslaughter, &c	16	.....	230	.....
N.				
National-bank circulation, letter from the Secretary of the Treasury, relative to the amount of $54,000,000 in notes for circulation which has been issued under act of July 12, 1870, &c	16	.....	250	.....
National debt, letter from the Secretary of the Treasury, in answer to resolution of the House, transmitting statements relative to refunding the	15	.....	207	.....
Naval appropriations, letter from the Secretary of the Navy, in answer to resolution of the House in relation to the, for year ending June 30, 1874, &c	10	.....	134	.....
Naval Asylum, letter from the Secretary of the Navy, relative to the advantages of a removal of the, from Philadelphia, Pa., to Annapolis, Md	12	.....	198	.....
Navy, Secretary of, annual report of the	4	3	1	.....
table of contents of the above	4	3	1	1
recommends an appropriation to meet extraordinary expenses of his Department	8	.....	9	.....
transmits answer to resolution of the House, with statement of the expenses consequent upon the abolition of the franking privilege	9	.....	77	.....
transmits list of clerks and other employés in his Department	9	.....	111	.....
communicates relative to the removal of the Naval Asylum from Philadelphia, Pa., to Annapolis, Md	12	.....	198	.....
transmits answer to resolution of the House, relative to Mare Island navy-yard	12	.....	199	.....
Navy, letter from the Secretary of the Interior, relative to appropriation required for pensions in the, for current fiscal year	16	.....	226	.....
Nebraska, letter from the Secretary of the Interior, transmitting estimate of appropriations required to fulfill treaty obligations with Winnebago Indians in	8	.....	44	.....
letter from the Secretary of the Interior, transmitting estimate of appropriation for the employment and support of a carpenter and shoemaker at the Pawnee agency in	9	.....	79	.....

Digitized by Google

Subject.	Vol.	Part.
Nebraska, letter from the Secretary of the Interior, transmitting estimate of appropriation for the purchase from the Omaha Indians in, of such quantity of land as may be required for the Winnebagoes in Wisconsin	9	
Nevada, letter from the Secretary of War, relative to the claim of Hiram H. McColley for value of property from which he was ejected by military authorities at Camp McDermitt	16	
New Mexico, letter from the Secretary of the Interior, transmitting an agreement with the Jicarilla Apache and certain Ute Indians in the Territory of	10	
letter from the Secretary of the Interior, transmitting the transcript of private land-claim reported as No. 77, in the name of the town of Ojo Caliente, Rio Arriba County, Territory of.	12	
letter from the Secretary of War, in relation to joint resolution of the House No. 55, relating to the military reservation known as Fort Butler, Territory of	12	
letter from the Secretary of the Interior, transmitting three reports of the surveyor-general of, on private land-claims in said Territory	12	
letter from the Secretary of the Interior, transmitting the report of the surveyor-general of, on private land-claim reported as No. 80, in the name of Juan de Mestas	15	
letter from the Secretary of the Interior, transmitting a report of the surveyor-general of, on private land-claim reported as No. 88, Santa Fé City land-claim	16	
letter from the Secretary of War, relative to House bill No. 1157, for the payment of certain volunteer companies in the service of the United States in the war with Mexico and in the suppression of Indian disturbances in	17	
New York, letter from the Secretary of the Treasury, transmitting draught of a bill for the relief of the assistant treasurer of the United States at the city of	9	
letter from the Secretary of the Interior, in relation to releasing or selling a portion of the Allegany reservation, in the State of	9	
Noland, Top, Vance, *et al.*, letter from the Secretary of War, relative to the claim of, for cotton taken from them	17	
Nolen, John, *et al.*, letter from the Secretary of War, relative to the claim of, named in House bill No. 1566, for compensation on account of services alleged to have been rendered the Government	16	
Northwestern Wyoming, letter from the Secretary of War, transmitting report of the reconnaissance of	17	
O.		
Officers, letter from the Secretary of War, relative to act July 15, 1870, making appropriations for support of the Army, calling attention to the provision relative to supernumerary	12	
Ordnance Department, letter from the Secretary of War, transmitting statement of the purchases made by the	16	
Ordnance stores, letter from the Secretary of War, relative to House bill No. 2724, for the relief of certain States and Territories on account of	16	

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
Oregon, letter from the chief clerk of the War Department, relative to the survey of the Coquille River, in	15	.....	216	.....
P.				
Paymaster-General of the Army, annual report of the, (vol. 1).....	2	2	1	219
Payment of troops by checks, letter from the Secretary of War, inclosing letter from Paymaster-General, stating objections to making, as proposed by House bill No. 256.....	15	.....	217	.....
Penitentiary, letter from the Secretary of the Interior, transmitting estimate of appropriations to supply a deficiency for building a, in Wyoming Territory.....	8	.....	13	.....
Pension-agents, letter from the Secretary of the Interior, in answer to resolution of the House, in relation to the number of, appointed under existing laws, &c.....	9	.....	97	.....
Pension Bureau, letter from the Secretary of the Interior, transmitting estimate of appropriations to supply deficiencies for the clerical force of the	8	.....	27	.....
Pensions, annual report of the Commissioner of.....	4	5	1	303
letter from the Secretary of the Interior, relative to an appropriation required for the Navy for current fiscal year	16	.....	226	.....
Pine timber, letter from the Secretary of the Interior, relative to, on lands within forfeited or lapsed railroad grants.....	16	.....	226	.....
Postal-savings institutions, letter from the Postmaster-General, in answer to resolution of the House relative to expense of	9	.....	76	.....
Postmaster-General, annual report of the.....	3	4	1	.....
transmits answer to resolution of the House relative to examination of mail-matter by any custom-house officer while passing the New York and Boston post-offices	8	.....	29	.....
communicates relative to expenses incurred by his Department consequent upon the abolition of the franking privilege.....	9	.....	59	.....
transmits answer to resolution of the House relative to postal-savings institutions and the postal-telegraph system.....	9	.....	76	.....
transmits list of clerks employed in his Department; reports of contracts, other than mail; inventory of public property; and statement of expenditure of contingent fund	9	.....	98	.....
Portland, Dalles and Salt Lake Railroad, letter from the Secretary of War, relative to the bill for the construction of the	12	.....	163	.....
Powder-magazine, letter from the Secretary of War, in relation to the proposed construction of a, near Fort Mifflin, Delaware	9	.....	105	.....
President of the United States, transmits annual message and accompanying documents, first session Forty-third Congress	1	1	1	.....
list of papers contained in above, relating to foreign affairs	1	1	1	3
transmits letter from the Secretary of State, with report of consular fees...	8	.....	8	.....

Digitized by Google

Subject.	Vol.	Part.	N
President of the United States, transmits documents and correspondence relative to the capture of the steamer Virginius, and proceedings subsequent thereto	8		
transmits a revision of the estimates for the expenses of the Government for the fiscal year ending June 30, 1875	7		
transmits by message report of a commission appointed to investigate the causes of steam-boiler explosions	8		
transmits by message a letter from the Secretary of State, with papers in the case of R. F. Farrell, late consul at Cadiz, Spain	9		
transmits by message a communication from the governor of New York, relative to a bronze statue of George Clinton, deceased	9		
transmits by message copies of correspondence relative to war with Modoc Indians	9		
communicates by message relative to the extent and nature of the contracts, purchases, and expenditures of the Indian service made since July 1, 1873	10		
letter from the Secretary of War, in relation to the date of the proclamation of the, declaring martial-law in District of Columbia	10		
communicates by message relative to expenses incurred by the various Departments for transportation of any matter which before the abolition of the franking privilege was carried in the mails	12		
returns by message, with his objections, the bill for the relief of William H. Denniston	12		
transmits, with message, the report of the civil-service commission	15		
communicates by message relative to the present difficulties in the State of Arkansas	16		

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
President of the United States, communicates by message copies of the correspondence between persons claiming to be governor of Arkansas and himself, relating to the troubles in that State	16	2	229	.....
communicates by message, in answer to resolution of the House, transmitting a report from the Secretary of War, relative to geographical and geological surveys west of the Mississippi	16	.....	240	.....
returns by message, without approval by, House bill No. 1331, for the relief of Joab Spencer and James R. Mead	16	.....	249	.....
transmits by message a report from the Secretary of State, with accompanying papers, relating to the landing of foreign convicts on our shores	16	.....	253	.....
transmits by message a communication from the Secretary of State, and a copy of the report of the commissioners to inquire into depredations on the frontiers of Texas	17	.....	257	.....
communicates by message relative to the payment of the debts of the District of Columbia	17	.....	288	.....
transmits by message the report of the statistical congress held at Saint Petersburg in 1872	17	.....	289	.....
communicates by message on the subject of the irrigation of the San Joaquin, Tulare, and Sacramento Valleys, California.	17	.....	290	.....
Prince, Henry, Maj., letter from the Secretary of War, relative to the case of, paymaster United States Army	12	.....	172	.....
Private land-claims, letter from the Secretary of the Interior, transmitting three reports of surveyor-general of New Mexico on, in said Territory	12	.....	206	.....
letter from the Secretary of the Interior, relative to certain, in Louisiana.	9	.....	60	.....
Private land-claim, letter from the Secretary of the Interior, transmitting transcript of, reported as No. 77, in the name of the town of Ojo Caliente, in Rio Arriba County, New Mexico	12	.....	148	.....
letter from the Secretary of the Interior, transmitting transcript of, reported as No. 79, in the name of Antonio Chaves.	12	.....	149	.....
letter from the Secretary of the Interior, transmitting report of surveyor-general of New Mexico on, reported as No. 80, in the name of Juan de Mestas.	15	.....	213	.....

Digitized by Google

Subject.	Vol.	Part.
Private land-claim, letter from the Secretary of the Interior, transmitting report of surveyor-general of New Mexico on, reported as No. 88, in the name of Santa Fé City	16	.....
letter from the Secretary of the Interior, in relation to the, of John Baptiste Vallè and Francis Vallè, sr.	16	.....
letter from the Secretary of the Interior, transmitting the, of Francis Vallè, jr.	16	.....
letter from the Secretary of the Interior, transmitting report of, No. 91, in the name of Francisco Montes Vigil	17	.....
Providence Hospital, letter from the Secretary of War, transmitting report on contract of the, for treatment of transient paupers	9	.....
Public building, letter from the Secretary of the Treasury, relative to an appropriation for purchase of lot on which the United States court-house and post-office building at Springfield, Ill., has been erected	12	.....
Public property, letter from the Secretary of State, transmitting inventory of, in his possession	8	.....
letter from the Postmaster-General, transmitting inventory of, in his Department.	9	.....
Q.		
Quartermaster-General, annual report of the (vol. 1)	2	2
R.		
Railroad, letter from the Secretary of War, relative to certain suits entered against certain railroad corporations on account of property sold to said corporations by the Government	9	.....
letter from the Secretary of the Interior, transmitting reports in relation to the Union Pacific.	9	.....
letter from the Secretary of War, relative to House bill No. 785, for relief of the Seaboard and Roanoke Railroad Company	10	.....
letter from the Secretary of War, relative to the bill providing for the construction of the Portland, Dalles and Salt Lake	12	.....
letter from the Secretary of War, relative to House bill No. 750, granting right of way over the Fort Lyon military reservation, Colorado Territory, to the Arkansas Valley Railway Company	12	.....
Railroad companies, letter from the Secretary of the Treasury, relative to sums of money paid to certain land-grant, for he transportation of troops and property of the United States	16	.....
Raymond, R. W., Prof., report of, on mines and mining	10	.....
Receipts and expenditures, letter from the Treasurer of the United States, transmitting his quarterly accounts of general, of the United States	8	.....
letter from the Secretary of the Treasury, transmitting account of, for the year ending June 30, 1871	8	.....
letter from the Acting Secretary of the Treasury, transmitting an account of the, of the United States for the fiscal year ending June 30, 1870	9	.....
Reform School, letter from the Secretary of the Interior, relative to a deficiency in the appropriation for the erection of buildings for the, in the District of Columbia	8	.....

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
Bettig, Fred., letter from the Secretary of War, transmitting draught of a bill for relief of, first lieutenant Florida battery	8	.....	50	.....
Revenue laws, letter from the Secretary of the Treasury, relative to the amount of money paid since the 4th March, 1869, by any person or persons in settlement of suits, judgments, &c., for violation of the, at the Boston and New York custom-houses	7	.....	124	.....
Rhode Island, letter from the chief clerk of the War Department, transmitting report upon the improvement and present condition of the Pawtucket River	17	.....	264	.....
River, letter from the Secretary of War, in answer to resolution of the House, in relation to the survey of the Grand Calumet, in the State of Indiana	8	.....	17	.....
letter from the Secretary of War, in relation to an appropriation for the preservation of the Falls of Saint Anthony	8	.....	49	.....
letter from the Secretary of War, in relation to a bridge now in process of construction across the Schuylkill, at South street, Philadelphia	9	.....	62	.....
letter from the Secretary of War, in answer to a resolution of the House, transmitting report of survey of the Flint and Chattahoochee Rivers, in Florida	9	.....	65	.....
letter from the Secretary of War, in answer to a resolution of the House, in relation to an estimate of expense of deepening the channel of the rivers connecting Lake Huron and Lake Erie	9	.....	81	.....
letter from the Secretary of War, in answer to a resolution of the House, in relation to the examination of the channel in Berwick Bay, at mouth of the Atchafalaya, Louisiana	9	.....	82	.....
letter from the Secretary of War, transmitting certain reports of examination of rivers and harbors under act of March 3, 1873	9	.....	84	.....
letter from the Secretary of War, transmitting a report of the survey and estimate of cost for the improvement of the Saginaw, Michigan	9	.....	120	.....
letter from the Secretary of War, relative to the improvement of the Ohio	10	.....	127	.....
letter from the Secretary of War, relative to the improvement of the Ohio	10	2	127	.....
letter from the Secretary of War, transmitting a further report on the improvement of the Ohio, below the falls	10	3	127	.....
letter from the Secretary of War, relative to surveys made upon the Upper Mississippi	12	.....	145	.....
letter from the Secretary of War, relative to an appropriation for the improvement of the mouth of the Mississippi	12	.....	152	.....
letter from the Secretary of War, relative to a project for the protection of the Colorado, at Yuma Depot	12	.....	154	.....
letter from the chief clerk of the War Department, relative to the survey of the Coquille, Oregon	15	.....	216	.....
letter from the chief clerk of the War Department, relative to the survey of the Ouachita, from Camden, Ark., to Trinity, La	17	.....	259	.....
letter from the chief clerk of the War Department, transmitting report upon the improvement and present condition of Pawtucket, Rhode Island	17	.....	264	.....
letter from the Secretary of War, relative to the improvement of the mouth of the Mississippi	17	.....	274	.....
Rivers, letter from the Secretary of War, transmitting reports of surveys of Harlem River, Raritan River, Crow Shoals, Old House Channel to main channel to Pamlico Sound, entrance to Matagorda Bay, and San Antonio Creek	12	.....	174	.....

Digitized by Google

Subject.	Vol.	Part.	No.
Rivers, letter from the Secretary of War, transmitting reports of surveys made of Forked Deer River and the Red River of the North	12	.....	192
letter from the Secretary of War, in answer to a resolution of the House, in relation to the survey of the Oostenaula and Coosawattee, in the State of Georgia	12	.....	196
letter from the Secretary of War, transmitting a draught of bill to aid in the improvement of the Fox and Wisconsin Rivers, in the State of Wisconsin	17	.....	256
Rivers and harbors, letter from the Secretary of War, transmitting certain reports of examination of, under act of March 3, 1873	9	.....	84
Roberts, B. S., Lieut. Col., letter from the Secretary of War, relative to the retirement of, Third U. S. Cavalry	17	.....	276
Ruffner, E. H., Lieut., letter from the Secretary of War, transmitting report and map of a reconnaissance in the Ute country made in 1873 by, of the Corps of Engineers	12	.....	193
S.			
Sabine Pass, letter from the Secretary of War, relative to deepening the bar of, Texas	16	.....	233
Sanborn and other contracts, letter from the Secretary of the Treasury, in answer to resolution of the House, relative to, made under act May 8, 1872	10	.....	132
letter from the Secretary of the Treasury, transmitting additional papers in relation to	10	2	132
Scott, General Winfield, letter from the Secretary of War, relative to the memorial of H. K. Brown, for an additional allowance for his equestrian statue of	10	.....	137
Scott, William B., Major, letter from the Secretary of War, relative to an appropriation to pay the claim of the estate of	15	.....	214
Seaboard and Roanoke Railroad Company, letter from the Secretary of War, relative to House bill No. 785, for the relief of the	10	.....	135
Seamen, letter from the Secretary of State, transmitting report in compliance with the act for the relief and protection of American	8	.....	34
Second Comptroller, letter from the Secretary of the Treasury, in answer to resolution of the House, relative to the decisions of the, of the Treasury under the eight-hour law	9	.....	73
Shipping commissioners, letter from the Secretary of the Treasury, in answer to resolution of the House, relative to a statement showing amounts of money paid into the Treasury under act authorizing the appointment of	9	.....	78
Spencer, Joab, and James R. Mead, message from the President, returning without his approval House bill No. 1331, for the relief of	16	.....	249
Soulie, B., letter from the Secretary of the Interior, relative to the claim of	17	.....	284
State Department, letter from the Secretary of State, transmitting statements of disbursement of the fund for expenses of the, for year ending June 30, 1873	8	.....	1
letter from the Secretary of State, transmitting names of clerks and other persons employed in the, during the year 1873	8	.....	34

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
State, Secretary of, transmits statements of the disbursement of the fund for expenses of his Department for year ending June 30, 1873	8	.....	7	.....
transmits report of fees collected by the consular officers of the United States during year ended December 31, 1872, &c	8	.....	8	.....
transmits inventory of public property in his possession	8	.....	11	.....
transmits report of relief and protection of American seamen	8	.....	34	.....
transmits names of clerks and other persons employed in his Department during year 1873	8	.....	35	.....
communicates answer to resolution of the House, transmitting a statement of expenses incurred by the abolition of the franking privilege	8	.....	48	.....
transmits papers in the case of R. F. Farrell, late United States consul, Cadiz, Spain	9	.....	114	.....
transmits report of the commercial relations of the United States	13	.....	143	.....
transmits communication relating to the commercial relations of the United States	15	2	211	.....
Statistical congress, message from the President, transmitting the report of the, held at Saint Petersburg, in 1872	17	.....	289	.....
Statue, message from the President, transmitting a communication from the governor of New York, relative to a bronze, of George Clinton, deceased	9	.....	115	.....
letter from the Secretary of War, in relation to the memorial of H. K. Brown, for an additional allowance for his equestrian, of General Winfield Scott	10	.....	137	.....
Steam-boiler explosions, message from the President, transmitting report of the commission appointed to investigate the causes of	8	.....	46	.....
Sturgeon Bay and Lake Michigan Ship-Canal, letter from the Secretary of War, relative to the plan and route of the	9	.....	88	.....
Superintendent of the Census, report of the	4	5	1	756
Superintendent of the Coast Survey, annual report of the, for the year 1873	11	.....	133	.....
Supernumerary officers, letter from the Secretary of War, relative to	12	.....	179	.....
Surgeon-General, annual report of the (vol. 1)	2	2	1	209
letter from the Secretary of War, in answer to a resolution of the House, transmitting a report of the, concerning the epidemic of yellow fever in the United States, 1873	9	.....	85	.....
Survey, letter from the Secretary of the Interior, relative to an estimate of appropriation for continuation of the geological and geographical, of the Territories	9	.....	74	.....
Surveyors of public lands, letter from the Secretary of the Interior, transmitting a petition of deputy, asking for an appropriation	15	.....	218	.....
Surveys, message from the President, in answer to resolution of the House, transmitting report from the Secretary of War, relative to geological and geographical, west of the Mississippi	16	.....	240	.....

Digitized by Google

Subject.	Vol.	Part.
T.		
Texas, letter from the Secretary of War, relative to an appropriation for the improvement of Galveston Harbor	10	.....
letter from the Secretary of War, relative to an appropriation for protection of the river-banks of the Rio Grande upon the site of Fort Brown	12	.....
letter from the Secretary of War, relative to the cost of a military telegraph in	12	.....
letter from the Secretary of War, relative to House bill No. 1590, to provide for the better protection of the frontier settlements of	16	.....
letter from the Secretary of War, relative to deepening the bar of Sabine Pass	16	.....
letter from the Secretary of War, relative to the burning of the town of Brenham, by United States soldiers, as alleged, in 1866	16	.....
message from the President, transmitting a communication from the Secretary of State, and a copy of the report of the commissioners to inquire into depredations on the frontiers of	17	.....
letter from the Secretary of War, relative to the purchase of military stores in	17	.....
Telegraph, letter from the Secretary of War, relative to the employment of a telegraphic operator for his Department	8	.....
letter from the Secretary of War, relative to the want of a law fixing a penalty for tampering with the military-telegraph lines in Arizona	9	.....
letter from the Secretary of War, relative to a line of, from Santa Fé, New Mexico, to Tucson, Arizona	12	.....
letter from the Secretary of War, relative to the proposed line of, between Santa Fé and Tucson	16	.....
letter from the Secretary of War, relative to an appropriation for the extension of a military, in Arizona Territory	17	.....
Territories, letter from the Secretary of the Interior, transmitting estimate of appropriations to supply deficiency for the continuation of the geological and geographical survey of the	8	.....
letter from the Secretary of the Interior, in relation to an estimate of appropriation for the continuation of the geological and geographical survey of the	9	.....
Transportation, message from the President, relative to expenses incurred by the various Departments for, of any matter which before the abolition of the franking privilege was carried in the mails	12	.....
Treasurer of the United States, transmits his quarterly account of receipts and expenditures	8	.....
Treasury, Secretary of, annual report of the, on the state of the finances	5	.....
index of the above report	5	.....
transmits estimates of appropriations for fiscal year ending June 30, 1875	7	.....
index of the above	7	.....
communicates answer to resolution of the House, relative to abolition of franking privilege	8	.....
transmits account of receipts and expenditures for the year ending June 30, 1871	8	.....

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
Treasury, Secretary of, transmits statement of temporary loans under the several acts of Congress	9	.....	58	.....
communicates answer to resolution of the House, relative to decisions of the Second Comptroller of the Treasury under the eight-hour law.	9	.....	72	.....
communicates answer to resolution of the House, in relation to a statement showing the amount of money paid into the Treasury under the act authorizing the appointment of shipping commissioners	9	.....	78	.....
communicates answer to resolution of the House, transmitting statement of the number of persons employed in the Internal-Revenue Bureau	9	.....	99	.....
the Acting, transmits an account of receipts and expenditures of the United States for the fiscal year ending June 30, 1870	9	.....	100	.....
index of the above	9	.....	100	461
transmits draught of a bill for the relief of the assistant treasurer of the United States at New York City.	9	.....	101	.....
communicates relative to act of March 3, 1873, to provide for the establishment of life-saving stations, &c	9	.....	103	.....
transmits answer to resolution of the House, relative to what accounts of regular or additional paymasters of the Army, for disbursements during the late war, remain unsettled, &c	9	.....	112	.....
transmits answer to resolution of the House, with statement of the amount of duties collected and paid on all goods, wares, and merchandise specified and provided for in the act of June 6, 1872, &c.	9	.....	116	.....
communicates relative to the operation of the eight-hour law	9	.....	117	.....
communicates relative to the amount of money paid since the 4th of March, 1869, by any person or persons, in settlement of suits, judgments, or claims made by the United States for violation of the revenue laws, at the Boston and New York custom-houses, &c.	7	.....	124	.....
transmits detailed statement of the contingent expenditures of his Department for fiscal year ending June 30, 1873	10	.....	131	.....
transmits answer to resolution of the House, relative to contracts made under authority of the Treasury Department in compliance with the act of May 8, 1872. (Sanborn and other contracts.)	10	.....	132	.....
transmits additional papers in relation to the Sanborn and other contracts	10	2	132	.....

Digitized by Google

Subject.	Vol.	Part.	No.
Treasury, Secretary of, communicates relative to amount of money paid into the Treasury arising from cotton and other captured and abandoned property	12		146
transmits estimates of deficiencies in appropriations required to complete the service of the current fiscal year	12		150
transmits statement of the fines, penalties, and forfeitures collected in the districts of Boston and New York, from November 30, 1873, to March 1, 1874, and the disposition made thereof	7		187
communicates relative to an appropriation for the purchase of the lot on which the United States court-house and post-office building, Springfield, Ill., has been erected	12		202
communicates in answer to resolution of the House, transmitting statements in relation to refunding the national debt	12		207
communicates in answer to resolution of the House, transmitting a statement of the amount of money refunded from March 4, 1873, to January 8, 1874, on account of customs-duties and internal taxes	15		211
communicates in answer to resolution of the House, transmitting statement showing the balances of appropriations July 1, 1873, made for service of fiscal year ending June 30, 1871, and previous years, &c.	16		235
communicates relative to amount of $54,000,000 of notes for circulation, which has been issued under act of July 12, 1870	16		250
communicates relative to sums of money paid to certain land-grant railroad companies for the transportation of troops and other property of the United States	16		252
transmits answer to resolution of the House, relative to Ambrose J. Clark, late paymaster of the United States Navy at Brooklyn, New York	17		262
transmits communication from Chief of the Bureau of Statistics, in relation to the printing in the Swedish language his special report on immigration	17		287
Troops, letter from the Secretary of War, transmitting a petition of officers of the Sixth Infantry, asking that, serving on the frontier be placed on the same footing with regard to leaves of absence	12		155
letter from the Secretary of War, inclosing a letter from the Paymaster-General stating objections to the scheme of making payments to, by checks, as proposed in House bill No. 2546	15		217
letter from the Secretary of the Treasury, relative to sums of money paid to certain land-grant railroad companies for transportation of, and property of the United States	16		252

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
U.				
Union Pacific Railroad, letter from the Secretary of the Interior, transmitting reports of the	9	.....	95	.....
Utah, letter from the Secretary of War, relative to the disposition of the Rush Valley military reservation in the Territory of	9	.....	96	.....
Ute country, letter from the Secretary of War, transmitting a report and map of a reconnaissance of the, made in 1873, by Lieut. E. H. Ruffner, of the Corps of Engineers	12	.....	193	.....
V.				
Vallé, Francis, jr., letter from the Secretary of the Interior, transmitting private land-claim of	16	.....	241	.....
Vallé, John Baptiste, and Francis, sr., letter from the Secretary of the Interior, in relation to the private land-claim of	16	.....	242	.....
Vigil, Francisco Montes, letter from the Secretary of the Interior, transmitting report of the surveyor-general of New Mexico on the private land-claim of, reported as No. 91	17	.....	280	.....
Virginius, message from the President, transmitting documents and correspondence relative to the capture of the steamer, and proceedings subsequent thereto	8	.....	30	.....
Volunteers, letter from the Secretary of War, relative to the bill of the House 1157, to provide for the payment of certain volunteer companies in the service of the United States in the war with Mexico and in the suppression of Indian disturbances in New Mexico	17	.....	272	.....
W.				
Ward, W. H., letter from the Secretary of War, relative to the petition of, for compensation for Government use of his improved bullet-machine	10	.....	126	.....
War Department, letter from the Secretary of War, transmitting a statement of contracts made by the various Bureaus of the, during the year 1873	12	.....	159	.....
letter from the chief clerk of the, relative to the reduction of the clerical force in the	15	.....	215	.....
letter from the Secretary of War, relative to the instruction by resolution of the House to the Committee on Military Affairs to inquire into the legality of General Orders No. 32 of the	17	.....	275	.....
War, annual report of the Secretary of, (vol. 1) of	2	2	1	32
Papers accompanying the above:				
Report of the General of the Army, (vol. 1) of	2	2	1	25
Report of the Adjutant-General, (vol. 1) of	2	2	1	54
Report of the Quartermaster-General, (vol. 1) of	2	2	1	99
Report of the Commissary-General of Subsistence, (vol. 1) of	2	2	1	203
Report of the Surgeon-General, (vol. 1) of	2	2	1	209
Report of the Paymaster-General, (vol. 1) of	2	2	1	219
Report of the Chief Signal-Officer, (vol. 1) of	2	2	1	229
War, annual report of the Secretary of, report of the Chief of Engineers, (vol. 2) of	2	2	1	.....
War, annual report of the Secretary of, report of the Chief of Ordnance, (vol. 3) of	2	2	1	.....
War, Secretary of, transmits certain developments connected with the late Bureau of Refugees, Freedmen and Abandoned Lands	8	.....	10	.....

Digitized by Google

Subject.	Vol.	Part.
War, Secretary of, transmits certain additional developments connected with the late Bureau of Refugees, Freedmen and Abandoned Lands	8	2
communicates relative to the employment of a telegraph-operator for his Department	8	.....
transmits draught of a bill for relief of Private Frank M. Kelly, Company F, First Cavalry	8	.....
transmits answer to resolution of the House, relative to the survey of the Grand Calumet River, Indiana	8	.....
transmits draught of a joint resolution authorizing the issue of clothing to certain enlisted men of the Army	8	.....
transmits report on the subject of military prisons	8	.....
transmits statement showing in detail the amount of appropriations which have been or will be expended on each of the permanent forts and batteries, from period of commencement of each work to present time	8	.....
communicates relative to a military wagon-road from Wallula to Seattle, Washington Territory	8	.....
communicates relative to an appropriation for the preservation of the Falls of Saint Anthony	8	.....
transmits draught of a bill for the relief of Frederick Rettig, first lieutenant First Florida Battery	8	.....
communicates relative to the sale of the military reservation at Fort Reynolds, Colorado Territory	8	.....
transmits draught of a bill repealing so much of section 5 of the legislative appropriation act approved May 8, 1872, as relates to sales of commissary stores	8	.....
communicates relative to a bridge now in process of construction across the Schuylkill River at South street, Philadelphia, Pa	9	.....
transmits answer to resolution of the House, with copy of a report upon the condition, &c., of the harbor at Milwaukee, Wis	9	.....
transmits a report of the board of engineers relative to the practicability of bridging the channels between Lake Huron and Lake Erie	9	.....
transmits answer to a resolution of the House, with a report of the survey of the Flint and Chattahoochee Rivers, in Florida	9	.....
communicates relative to the insufficiency of the unexpended balance of appropriation for collection and payment of bounties to colored soldiers and sailors	9	.....
communicates relative to the bill of the House No. 966, relating to the use by the public of the bridges and roads connecting the cities of Davenport and Rock Island	9	.....

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
Secretary of War, transmits report on contract of the Providence Hospital, District of Columbia, for the treatment of transient paupers.	9	.....	68	.....
transmits estimates of appropriations for armaments and fortifications.....	9	.....	69	.....
communicates relative to certain suits instituted by the United States against certain railroad corporations on account of property sold said corporations by the Government.....	9	.....	70	.....
transmits a report of a board of arbitrators convened for the purpose of appraising the valuation of certain buildings on the military reservation of Fort Bridger, Wyoming Territory..	9	.....	71	.....
transmits answer to a resolution of the House, relative to an estimate of expense of deepening and widening the navigable channel of the rivers connecting Lake Huron and Lake Erie...	9	.....	81	.....
transmits answer to a resolution of the House, relative to the examination of the channel of Berwick Bay, mouth of Atchafalaya River, Louisiana	9	.....	82	.....
communicates relative to the removal of the north pier of the old railroad-bridge of the Chicago, Rock Island and Pacific Railroad, at Davenport, Iowa ..	9	.....	83	.....
transmits certain reports of examination of rivers and harbors under act of March 3, 1873	9	.....	84	.....
communicates, in answer to a resolution of the House, transmitting a report of the Surgeon-General concerning the epidemic of yellow fever in the United States in 1873.....	9	.....	85	.....
communicates relative to the want of a law affixing a penalty for tampering with the military-telegraph lines in Arizona	9	.....	86	.....
transmits a statement showing amounts due or overdrawn by the several States under the law for arming the militia on the 22d January, 1874; also, the annual report of the Chief of Ordnance relative to the same.....	9	.....	87	.....
communicates relative to the plan and route of the Sturgeon Bay and Lake Michigan Ship-Canal.....	9	.....	88	.....
communicates relative to the disposition of the Rush Valley military reservation, Utah Territory.....	9	.....	96	.....
communicates relative to "instructions for the government of armies of the United States in the field".....	9	.....	100	.....
transmits, in answer to a resolution of the House, a report showing the progress of work on harbor of refuge at mouth of Sturgeon Bay and Lake Michigan Ship-Canal.....	9	.....	104	.....
communicates relative to the proposed construction of a powder-magazine on the old Lazaretto tract, near Fort Mifflin, Delaware	9	.....	105	.....
communicates relative to an appropriation for the purchase of the property adjoining Winder's building	9	.....	106	.....

Digitized by Google

Subject.	Vol.	Part.	No.	Page
Secretary of War, communicates relative to a number of accounts of disbursing officers of the Army as still unsettled under act of June 23, 1870	9	.....	107	.....
transmits answer to a resolution of the House relative to a ship-canal to connect the Mississippi River with the Gulf of Mexico	9	.....	113	.....
communicates in answer to a resolution of the House, transmitting a report of the survey and estimate of cost of improvement of the Saginaw River, Michigan	9	.....	120	.....
transmits reports of the Quartermaster-General and Commissary-General of Subsistence, giving their views upon certain classes of claims growing out of the late war	9	.....	121	.....
communicates relative to the petition of W. H. Ward for compensation for use by the Government of his improved bullet-machine	9	.....	126	....
communicates relative to the improvement of the Ohio River	9	.....	127	....
communicates relative to the improvement of the Ohio River	9	2	127	....
communicates relative to the improvement of the Ohio River	9	3	127	....
transmits draught of a bill to regulate the construction of bridges over the navigable waters of the United States	9	.....	128	....
communicates relative to an appropriation for the improvement of Galveston Harbor, Texas	9	.....	136	...
communicates relative to the memorial of H. K. Brown, for additional allowance on his statue of General Scott	9	.....	137	...
communicates relative to the bill of the House No. 785, for relief of the Seaboard and Roanoke Railroad Company	9	.....	138	...
transmits reports of the various Bureaus of his Department in relation to civil-service reform	9	.....	139	...
communicates relative to the date of the President's proclamation declaring martial-law within the District of Columbia	9	.....	140	...
communicates relative to clothing lost by enlisted men of Company F, Third United States Cavalry, during a flood in Blackwood Valley, May 31, 1873	12	.....	144	..
communicates relative to surveys made upon the Upper Mississippi River	12	.....	145	..
communicates relative to an appropriation to repair the existing pile-work on west side Ontonagon Harbor	12	.....	151	..
communicates relative to an appropriation for the improvement of the mouth of the Mississippi River	12	.....	152	..
communicates relative to an appropriation for the protection of the banks of the Rio Grande River upon the site of Fort Brown, Texas	12	.....	153	.
communicates relative to a project for the protection of the banks of the Colorado River at Yuma military depot	12	.....	154	.

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
Secretary of War, transmits a petition of officers of the Sixth Infantry, asking that troops serving on the frontier be placed on better footing with regard to leaves of absence	12	.....	155	.....
transmits a statement of contracts made by the various Bureaus of the War Department during the year 1873	12	.....	159	.....
communicates relative to bill of the House No. 773, to reduce the Fort Sanders military reservation	12	.....	160	.....
communicates relative to Plymouth Harbor, Massachusetts	12	.....	161	.....
communicates relative to the condition of the harbor at Kenosha, Wis	12	.....	162	.....
communicates relative to the bill providing for the construction of the Portland, Dalles and Salt Lake Railroad	12	.....	163	.....
communicates relative to the bill of the House No. 750, granting right of way over Fort Lyon military reservation, Colorado Territory, to the Arkansas Valley Railway Company	12	.....	164	.....
communicates relative to the bill for the relief of certain settlers on the Fort Randall military reservation	12	.....	165	.....
communicates relative to the cost of a military telegraph in Texas	12	.....	166	.....
tramits information relative to the claim of G. L. Maloney	12	.....	170	.....
communicates relative to the course now pursued by his Department in addressing to the Speaker communications for the consideration of any of the committees of the House	12	.....	171	.....
communicates relative to the case of Major Henry Prince, paymaster, United States Army	12	.....	172	.....
transmits reports of surveys of Harlem River, Raritan River, Crow Shoals, Old House Channel to main channel to Pamlico Sound, entrance to Matagorda Bay, and San Antonio Creek	12	.....	174	.....
communicates relative to bill of the House No. 1701, for the relief of James W. Long, late a captain in the United States Army	12	.....	175	.....
communicates relative to the relinquishment of Fort Wilkins, Michigan	12	.....	176	.....
communicates relative to the narrowing of the draw in the Long Bridge over the Potomac River by obstructions placed there by the Baltimore and Potomac Railroad Company	12	.....	178	.....
communicates relative to the act of July 15, 1870, making appropriations for the support of the Army for the year ending June 30, 1871	12	.....	179	.....
communicates relative to joint resolution of the House No. 55, respecting military reservation known as Fort Butler	12	.....	180	.....
communicates relative to proposals made by citizens of Atlanta, Ga., to sell grounds for barracks, &c., as contemplated by bill of the House No. 1429	12	.....	182	.....

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
War, Secretary of, communicates relative to the sale of Horn Island military reservation, in Gulf of Mexico	12	.....	184	.....
transmits papers showing the cost to the Quartermaster's Department of the Modoc war	12	.....	185	.....
communicates relative to the expenses incurred upon the abolition of the franking privilege	12	.....	188	.....
communicates relative to an examination of the wreck of the ship Patrician and Noonday Rock, at the entrance to the harbor of San Francisco, California	12	.....	189	.....
communicates relative to bill of the House No. 1574, to aid in the construction of a fire-alarm telegraph in the District of Columbia	12	.....	190	.....
transmits letter of Norman Wiard, proposing experiments in ordnance, and for making and testing new guns of large caliber	12	.....	191	.....
transmits reports of surveys made of the Forked Deer River and the Red River of the North	12	.....	192	.....
transmits a report and map of a reconnaissance in the Ute country, made by Lieut. E. H. Ruffner, of the Corps of Engineers, in 1873	12	.....	193	.....
transmits reports on the construction of the Saint Louis and Illinois bridge across the Mississippi River	12	.....	194	.....
communicates relative to the present condition of Presidio military reservation	12	.....	195	.....
transmits answer to a resolution of the House, relative to the survey of the Oostenaula and Coosawattee Rivers, in the State of Georgia	12	.....	196	.....
communicates relative to bill of the House No. 1479, to restore the Rush Valley military reservation, in Utah, to the public lands	12	.....	197	.....
transmits statement of deficiency in the appropriation for his Department for year ending June 30, 1873	12	.....	203	.....
communicates relative to a telegraph line from Santa Fé, New Mexico, to Tucson, Arizona	12	.....	204	.....
communicates relative to bill of the House No. 2298, to restore certain lands in California to homestead and pre-emption settlement	12	.....	205	.....
communicates in answer to a resolution of the House, transmitting a report upon an examination of waters for the extension of the Chesapeake and Ohio Canal to the Ohio River	12	.....	208	.....
transmits a statement showing the appropriations for the military service for the preceding year	12	.....	209	.....
communicates relative to an appropriation to pay the claim of the estate of Maj. William B. Scott	15	.....	214	.....

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
War, Secretary of, the chief clerk of the War Department communicates relative to the reduction of the clerical force in the War Department	15	.....	215	.....
the chief clerk of the War Department communicates relative to the survey of the mouth of the Coquille River, Oregon	15	.....	216	.....
transmits letter from the Postmaster-General, stating in full the objections to the scheme of making payments to troops by checks, as proposed by bill of the House No. 2546	15	.....	217	.....
communicates in answer to a resolution of the House, transmitting a report upon the James River and Kanawha Canal project	15	.....	219	.....
communicates relative to the ship-canal to connect the Mississippi River with the Gulf of Mexico	16	.....	220	.....
communicates relative to bill of the House No. 1590, to provide for the better protection of the frontier settlements of Texas against Indian and Mexican depredations	16	.....	222	.....
communicates relative to deepening the bar of Sabine Pass, Texas	16	.....	223	.....
communicates relative to a request of the President of the Argentine Republic to have educated at the Military Academy at West Point, at its expense, four or six young men, graduates of the military school established by that republic	16	.....	224	.....
communicates relative to the claim of the persons named in bill of the House No. 1566, for compensation for alleged services to the Government	16	.....	225	.....
transmits draught of a bill giving to general courts-martial jurisdiction of the crimes of murder, manslaughter, &c	16	.....	230	.....
transmits estimate of appropriation for the purpose of furnishing food to destitute persons on the Lower Mississippi River	16	.....	231	.....
communicates relative to the cost of a proposed telegraph-line between Santa Fé and Tucson	16	.....	232	.....
transmits a statement of the purchases made by the Ordnance Department during the year 1873, &c	16	.....	233	.....
communicates relative to an appropriation to build permanent barracks at Alcatraz Island	16	.....	234	.....
communicates relative to the burning of the town of Brenham, Tex., by United States soldiers, as alleged, in 1866	16	.....	237	.....
the President transmits in answer to a resolution of the House a report from the, relative to geographical and geological surveys west of the Mississippi	16	.....	240	.....
communicates relative to bill of the House No. 2724, for the relief of certain States and Territories on account of ordnance stores issued to them during the late civil war	16	.....	245	.....

Digitized by Google

Subject.	Vol.	Part.	No.
War, Secretary of, communicates relative to the claim of Hiram H. McColley for the value of property from which he was ejected by military authorities at Camp McDermitt, Nevada	16	.....	251
communicates relative to granting the Memphis and Vicksburgh Railroad Company the right to build a bridge over Yazoo River	16	.....	254
communicates relative to the case of Captain Hurtt, A. Q. M., United States Volunteers, &c.	16	.....	255
transmits additional papers in connection with the Hurtt court-martial	16	2	255
transmits draught of a bill to aid the improvement of the Fox and Wisconsin Rivers, in the State of Wisconsin	17	.....	256
communicates relative to a survey of the Ouachita River, from Camden, Arkansas, to Trinity, La	17	.....	259
communicates relative to the number and dimensions of the Government buildings at Yuma Depot liable to damage from freshets in the Colorado River	17	.....	261
transmits draught of a bill to authorize an issue of clothing to Sergt. Maj. William F. King, Twenty-fifth Infantry	17	.....	263
the chief clerk of War Department transmits a report upon the past improvement and present condition of Pawtucket River, Rhode Island	17	.....	264
the chief clerk of War Department transmits answer to a resolution of the House, relative to the extension of the Chesapeake and Ohio Canal	17	.....	265
communicates relative to an appropriation to build permanent barracks at Alcatraz Island, California	17	.....	266
communicates relative to the claim of George A. Miller, late lieutenant, &c., and also the claim of George L. Maloney for pay as first lieutenant, &c.	17	.....	267
communicates relative to the military reservation at Fort Wilkins, Michigan	17	.....	268
communicates relative to the claim of Noland, Topp, Vance, and others, for cotton taken from them	17	.....	269
communicates relative to an appropriation for the extension of a military telegraph-line in Arizona Territory	17	.....	270
communicates relative to the cost to the Government of Lieut. G. M. Wheeler's expedition of 1873	17	.....	271
communicates relative to bill of the House No. 1157, to provide for the payment of certain volunteer companies in the service of the United States in the war with Mexico and in the suppression of Indian disturbances in New Mexico	17	.....	272
communicates relative to the improvement of the mouth of the Mississippi River	17	.....	274

Digitized by Google

Subject.	Vol.	Part.	No.	Page.
War, Secretary of, communicates relative to the resolution of the House inquiring concerning the General Orders No. 32 of War Department, March 15, 1873	17	.....	275	.....
communicates relative to the retirement of Lieut. Col. B. S. Roberts, Third United States Cavalry	17	.....	276	.....
communicates relative to the formation of an Army mutual survivorship annuity society	17	.....	277	.....
communicates relative to the proceedings of a board of officers convened at Camp Douglas, Utah Territory, to investigate the loss by fire for which Second-Lieutenant Wallace Mott, Eighth Infantry, and assistant commissary of subsistence, is responsible	17	.....	278	.....
the chief clerk of War Department communicates the circumstances of the murder of Lieut. Eben White by John H. and Webster Sothoron	17	.....	281	.....
communicates relative to the purchase of military sites in Texas	17	.....	282	.....
transmits report of the reconnaissance of Northwestern Wyoming	17	.....	285	.....
the chief clerk of War Department transmits a report of Inspector-General James A. Hardie, U. S. A., upon the subject of the Dakota Indian war-claims of 1862	17	.....	286	.....
Washington, letter from the Secretary of War, relative to the construction of a military wagon-road from Wallula to Seattle, in the Territory of	8	.....	33	.....
letter from the Secretary of the Interior, transmitting an estimate of appropriation to pay for improvements by settlers on lands set apart for Makah Indians, in the Territory of	9	.....	119	.....
Wheeler's expedition, letter from the Secretary of War, relative to the cost of, of 1873	17	.....	271	.....
White, Eben, Lieut., letter from the chief clerk of the War Department, giving the circumstances of the murder of, by John H. and Webster Sothoron	17	.....	281	.....
Wiard, Norman, letter from the Secretary of War, transmitting an inclosed letter from, proposing experiments in ordnance, and for making and testing new guns of large caliber	12	.....	191	.....
Winder's building, letter from the Secretary of War, relative to an appropriation for the purchase of the property adjoining	9	.....	106	.....
Wisconsin, letter from the Secretary of War, in answer to a resolution of the House, transmitting a copy of a report upon the condition, &c., of the harbor at Milwaukee	9	.....	63	.....
letter from the Secretary of War, relative to the condition of the harbor at Kenosha, in the State of	12	.....	162	.....
letter from the Secretary of the Interior, relative to an appropriation for the relief of the Stockbridge and Munsee tribe of Indians, in	16	.....	244	.....
letter from the Secretary of War, transmitting draught of a bill to aid the improvement of the Wisconsin and Fox Rivers, in the State of	17	.....	256	.....
Wyoming, letter from the Secretary of the Interior, transmitting an estimate of appropriations to supply a deficiency in the appropriation for building a penitentiary in the Territory of	8	.....	13	.....

Digitized by Google

Subject.	Vol.	Part.	No.	Page
Wyoming, letter from the Secretary of War, transmitting a report of a board of arbitrators for the appraisal of the valuation of certain buildings on the military reservation of Fort Bridger, in the Territory of	9	.....	71	.....
letter from the Secretary of War, transmitting report of the reconnaissance of Northwestern	17	.....	285	.....
Y.				
Yellow fever, letter from the Secretary of War, transmitting, in answer to resolution of the House, a report of the Surgeon-General concerning the epidemic of, in the United States in 1873	9	.....	85	....
Yellowstone Park, letter from the Secretary of the Interior, transmitting draught of a bill amendatory of and supplemental to the act to set apart a certain tract of land, lying near the headwaters of the Yellowstone River, as a public park	12	.....	147	....

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43D CONGRESS, 1st Session. } HOUSE OF REPRESENTATIVES. { Ex. Doc. 1, Part 2.

REPORT

OF THE

SECRETARY OF WAR,

BEING PART OF

THE MESSAGE AND DOCUMENTS

COMMUNICATED TO THE

TWO HOUSES OF CONGRESS

AT THE

BEGINNING OF THE FIRST SESSION OF THE FORTY-THIRD CONGRESS.

VOLUME I.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1873.

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REPORT

OF

THE SECRETARY OF WAR.

WAR DEPARTMENT,
November 24, 1873.

Mr. PRESIDENT: I deem it proper in the commencement of this report to make a statement of the estimates of appropriations for the Department for the next fiscal year, comparing them with the appropriations for the current year, and giving the reasons for the change.

The estimates for military purposes for the year ending June 30, 1874, were $33,826,378.78. The estimates for the same purpose for the year ending June 30, 1875, are $34,410,722.89; the excess of the next year over the current one being $584,344.11. The appropriation for military purposes for the year ending June 30, 1874, were $32,917,971.37.

It has been the custom of Congress from time to time to reduce the estimates of the Department. I have endeavored, aided by the officers of the Department and of the Army, to keep the expenditures within the limit prescribed by Congress, but experience has shown that the amounts previously asked for, based on data carefully prepared by the chiefs of bureaus, after ample consideration, were necessary for the management of the Department.

In addition to the usual estimates already named, the following are submitted for such action as Congress may deem proper to take:

Armament of forts	$1,449,550
Estimates for engineer purposes	20,459,396

It will be observed that among the estimates for the War Department for the next as well as the preceding years, many appropriations are asked for which should not be classed under those for the support of the Army proper: For instance, those for the observation and report of storms; the Freedmen's Hospital; the settlement of claims for horses lost in the military service; the collection and payment of bounty to colored soldiers; military telegraph lines in different parts of the country; refunding to States expenses incurred in raising volunteers; signal stations at light-houses; arming and equipping the militia; and numerous other subjects of like character, demand expenditures which cannot legitimately be charged as being for the current uses of the military establishment.

A critical examination of these expenditures, some of them authorized

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by Congress without any recommendation on the part of this Department, will show that the total expenditures are largely in excess of the amount absolutely necessary for the actual requirements of the Army itself.

I refer especially to this subject in order that it may be understood that a great part of the money appropriated for this Department by Congress is for expenditures similar to those named, and should not be considered as required for the support of the Army, but arises from the trusts imposed upon the military branch of the Government in the execution of works of internal improvement, for the benefit of the people.

The act of March 3, 1873, for the establishment of a military prison, made no appropriation to meet any of the expenses necessary to carry it into effect. In order, however, that no time might be lost, a preliminary board, composed only of Army officers, was constituted to collect information and material for commencing more definite labor upon the plan so soon as Congress should appropriate the means. This board, in its investigations, has succeeded in doing even more than was anticipated; and, fortunately, two gentlemen from civil life, who have devoted much time and zealous study to the subject of reformatory prison discipline, have been found willing to give a share of their time gratuitously, until the appropriation shall be made, to the work of preparing a plan and regulations for the military prison. This has enabled me to carry out the provisions of the second section of the act, by appointing the board therein prescribed. Their report will form the subject of a future special communication to Congress.

It is very difficult, under existing laws, to supply the Army with field-musicians, two of which are allowed to each company. As this is an essential part of the military establishment better facilities for obtaining musicians should be afforded, by the passage of an act to authorize the enlistment of boys not under twelve years of age, always with the consent of parents or guardians. This provision did exist until, probably through inadvertence, the law of 1864, against enlistment of minors, put an end to it.

It is unnecessary to allude to notorious cases of efficient service by music boys, even on the field of battle, to illustrate their perfect competency for all the duties required of musicians. While they make the best musicians, they generally, at more advanced age, have become most valuable non-commissioned officers as the fruit of their early training. This plan has, too, the merit of being a most useful charity, for it would provide for many sons of old soldiers, living and dead, who now are without aim or object in life, and in danger of becoming worthless men, but who, if enlisted, would have the benefit not only of tuition in music, but also in the useful common branches of education taught at the depot school.

The subject of the discharge of minors who have enlisted in the Army has ever been a perplexing one. The most stringent prohibitions have

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been laid upon recruiting-officers, and whenever a minor has passed from the rendezvous to the depot, and is there detected by the examining board, he is sure to be at once discharged. In spite of every precaution a large number of young men, minors in the eye of the law, but actually men who have been practically their own masters for a considerable time, do pass themselves as of full age, freely take the oath to that effect, as embodied in the contract of enlistment, and are transported, at considerable expense, to regiments. Here, on the least dissatisfaction, or after commission of some crime involving punishment, they forthwith write to the parents, who have hitherto, perhaps, bestowed but little care upon them, and a moving appeal is made to the Department for their discharge. Since the passage of the act of May 15, 1872, the Department has judged that it had no discretion left, and when the proof of minority is clear, and the consent of parent or guardian has not been obtained, discharge is invariably given. Since the passage of the act referred to, and up to June 30, 1873, 296 applications for discharge from this cause have been received. Great expense to the Government, as well as frequent evasion of punishment, and consequent disorganization of necessary military discipline, is thereby caused; nor is the ostensible object of the parents to recover the child effected, because the latter is discharged hundreds of miles from home, and even if disposed to return, which is seldom the case, has not the pecuniary means. The recruiting-officers are charged with the expenses of enlistment of minors when clearly guilty of want of due care; but it is exceedingly difficult in many instances to ascertain the true age of a man, even with such critical examination as recruits are subjected to. Thus, while the Government is imposed upon, under an oath, by the recruit, while it, in good faith, feeds, clothes, transports to a regiment, and often pays him, it is by present legislation left without protection or remedy against the fraud. The recruit obtains all the benefit, sometimes is transported to a region where he wishes to settle, and then obtains a discharge with perfect impunity for his fraud.

It is suggested that some action be taken toward the passage of a positive law to provide for the punishment of recruits who have deceived the recruiting-officers by falsely swearing to their age or physical condition. In my judgment he should be immediately turned over to the proper tribunal, and the United States law-officer in whose district the recruit may have committed the offense should be required to prosecute him for the false oath he has taken and for the great expense he has given the Government.

The practice, which prevailed to a considerable extent, of Army officers visiting the seat of Government during the session of Congress, attempting to influence legislation by interviewing members of Congress, and presenting business which should only be brought to their attention through the head of the Executive Department, became such a serious evil that on March 15, 1873, I caused an order to be issued directing that

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no officer, either active or retired, shall, directly or indirectly, without being called upon by proper authority, solicit, suggest, or recommend action by members of Congress for or against military affairs. The necessity for this order was apparent. Members of Congress have frequently brought the subject to my attention, and have made complaint, very justly, of the persistent efforts made with them personally to influence their views on legislation. The order, as it itself says, is not intended to preclude officers from illustrating or expounding a measure before Congress which may have received the favor or sanction of the President, Secretary of War, or the General of the Army. The experience of officers when so used is and will be viewed as valuable, but it was and is intended to restrain officers from urging their views in an improper manner upon members of Congress, and in consuming the time of those intrusted with the necessary legislation of the Government. That order will be enforced so far as it lies within my power and authority to accomplish it.

I had the satisfaction during the spring, in company with the Lieutenant-General of the Army, to make a tour of inspection through the Department of Texas, and to visit many of the posts located on the frontier in that region.

My attention was particularly directed to the efficiency and good conduct of the troops there stationed. Situated as many of the posts are, remote from the comforts of civilization, it was a matter of great satisfaction that discipline was observed, and that all the requirements of good military service were strictly carried out. At several of these posts where both white and colored soldiers were stationed, the general good conduct and fine military appearance of all the troops composing the garrisons were prominent to a marked degree.

In section 24 of the act of July 15, 1870, the pay of officers of the Army was established, and provision was made that the sums therein specified should be in full of all commutation of quarters, fuel, forage, servant hire and clothing, longevity rations, and all allowances of every name and nature whatever, and should be paid monthly by the paymaster. Further legislation is necessary to define the scope of this provision, whether it is intended to include certain things, such as transportation in kind of officers' servants, transportation of officers' horses and baggage, authorized in regulations before its passage, but not held to be emoluments, or does it have reference simply to the money allowances then received by officers of the Army. If the former construction is to be given it, it then really discontinues the allowance of servants altogether, which all former laws and regulations have encouraged, and would often unfit an officer for effective service by depriving him of transportation for authorized horses and baggage that often could not be purchased or obtained at his new station. All these have been furnished by the Government from its foundation, and for its own interests, primarily, the benefit to the officer being but incidental, and while it is presumed that

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the clause referred to intended to embrace in a salary all that had been included in money allowances, in providing for the compensation of officers of the Army, a distinct enunciation of its meaning by Congress is desirable. I deemed it necessary, on the 25th day of February, 1873, to issue the following order in connection with this subject, which will continue as the rule unless further legislation is had:

The payment of rent, or any allowance for fuel or quarters of officers' servants, is hereby prohibited until more specific legislation shall sanction it.

During the past year the five Inspectors-general of the Army have been exclusively subject to the orders of the Secretary of War and the General of the Army, and have made careful and thorough inspections of the South, the Departments of Texas, of the Missouri, of the Gulf, of Arizona, of Dakota, and of the Columbia, excepting Alaska. In the Departments of Arizona, Texas, Dakota, and the Columbia, thorough examination was made into the condition of the personnel and material of the Army at all the remote and widely-dispersed posts, stations, and depots within the limits of those departments, (with the exception of Alaska,) embracing one hundred and seventeen military posts, garrisoned by eighteen regiments of infantry, seventeen companies of artillery, and eight regiments of cavalry. Besides this, other minor inspections and investigations have, from time to time, been made by the officers of this corps, involving voluminous reports, which have been made without any expenditure for clerical assistance. Scrutinizing examinations have been made by the Inspectors-general of the accounts of all officers who have made important disbursements of public money during the year. The funds received and expended by them, with the balances reported due the United States, have been carefully verified by official statements received from the Treasury Department and depositories, and under this system it is hardly possible that a defalcation or fraud on the part of disbursing officers of this Department can escape timely detection.

The assistant inspectors-general have been attached to the headquarters of the various military divisions, and they, as well as several officers who have been temporarily assigned to duty in some of the remote departments as acting assistant inspectors-general, have been actively and usefully engaged in the duties pertaining to their positions.

Since the close of the war, in the Quartermaster's Department, much time and labor have been bestowed upon the examination and settlement of the accounts of officers for disbursements made during the rebellion and since its close. Most of these accounts have been adjusted, and the accounts of disbursing officers of that Department are now examined promptly as received. Within the past two years I have caused the forms and methods of business in this Department to be simplified, to the advantage of the service and the relief of officers.

Much difficulty is experienced in keeping the expenses of the Quartermaster's Department within the amounts appropriated by Congress,

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and so apparent was it during the past fiscal year that the appropriation for barracks and quarters would not admit of any expenditure from that appropriation beyond the payment of rent of offices and hire of quarters for troops, that it was found necessary early in the spring to entirely arrest any work upon the repair and construction of barracks and quarters. Notwithstanding this necessary and sharp measure, which involved much inconvenience to the troops, crowded into buildings much in need of repair, or cantoned in tents and huts too much exposed to the inclemency of the weather, the liabilities have to a small amount exceeded the sum appropriated.

It is necessary that I should ask the attention of Congress to the difficulties of keeping accounts, and of paying for supplies and services, which arise under the operation of the act approved July 12, 1870. The act in its operation requires every disbursing officer to keep a separate and distinct set of accounts under every head of appropriation, and to keep a balance of money on hand to meet the demands under each head, thereby compelling officers to keep to their credit at depositories much larger balances than heretofore. A remedy for this is to make the appropriation for the Quartermaster's Department under one head as a single appropriation, requiring, as now, that the estimates upon which the appropriation is based shall be submitted in detail. No benefit can arise in practice from the system of keeping separate heads of appropriation in this Department, while its existence gives many occasions for error and mistakes, and is a burden upon the officer who is required to disburse the public money, as well as upon the Treasury. The evils of the present system are fully set forth in the report of the Committee on Expenditures in the War Department, made to Congress at its last session.

As many lieutenants of the line are often required to assume the labors and responsibilities of acting assistant quartermasters, it is recommended that an allowance of $10 per month be made by law to officers so detailed, as a moderate compensation to them for the risk as well as the labor in disbursing public money and keeping and distributing stores.

Of the fifty railroads which, at the close of the war, under executive orders, purchased from this Department railroad material to the appraised value of over $7,500,000, thirty of them have paid their debts in full. The remaining twenty are still in our debt to the amount of $4,658,924.07. The total amount collected from these sales, with interest and expenses, has thus far been $5,116,605.53.

I recommend the passage of a law which will enable the Department to collect from the Post-Office Department the postal earnings of several of these delinquent railroads. The bonds of the roads given at the time of purchase pledge them to use these earnings in liquidation of their debts, but they refuse or persistently neglect to give to the Post-

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master-General the necessary formal orders to turn over the funds to this Department.

Ten thousand dollars was appropriated during the last year for the prosecution of the work on the artesian well at Fort D. A. Russell. Since then considerable progress has been made in that work. It has now reached a depth of 1,005 feet. The work has now for some hundreds of feet been carried through a stratum of clay, and there is good reason to hope that when the clay is pierced the water will be reached, and a strong flowing well developed. From the importance to the people of the Territories of Colorado, Wyoming, Montana, and Dakota, which a series of flowing wells would have upon the development of their material interests, I recommend that an appropriation be made to continue the present experiment.

Under the provisions of the appropriation act approved March 3, 1873, advertisement was made for bids to provide head-stones for the graves of deceased soldiers in the national cemeteries. Eighty bids were received and opened in public by the Quartermaster-General on the 6th of September.

The advertisement called for bids for furnishing head-stones of gray granite and white marble of a specified quality, as these materials, in my judgment, best fulfilled the requirements of the law in respect to "decency, durability, and cheapness."

A careful examination of the bids resulted in an award of contract for granite head-stones for the National Cemetery at Fredericksburgh, Va. For all the other national cemeteries contracts have been awarded to the four lowest bidders for white marble head-stones. The responsibility of the bondsmen of these contractors is required to be certified to by the United States district judge, or by the collector of internal revenue of the district in which they reside.

A small slab, four inches thick, has been prescribed for the known, and a block six inches square for the unknown dead. The former will number about 148,000, and the latter about 105,000.

Particular care has been taken to have these head-stones *permanent* when once erected. The entire cost of the slabs and blocks, under the contracts as awarded, should they be entered into by the successful bidders, will amount to $770,045.48.

Should, however, any of the parties to whom awards have been made fail to enter into the contracts prescribed, none of the contracts will be executed unless the whole work can be contracted for within the appropriation of $1,000,000, the limit prescribed by the law.

The appropriation of $100,000 made by Congress in the act approved March 3, 1873, for the erection of a depot at San Antonio, Tex., has not been expended, nor have any decided steps looking to the erection of the buildings contemplated been taken. A personal visit to San Antonio last spring, and consultation with the Lieutenant-General of the Army and other responsible officers, having satisfied me that no necessity

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exists for the expenditure of the money, and that the small force that will hereafter be required at that place could, economically, be provided for by rented or leased buildings. I recommend that the sum appropriated be used for the rent or purchase of such sites of posts in Texas as may be found to be actually needed for military purposes.

The report of the Commissary-General shows that the average cost of the Army-ration for the year has been seventeen cents and forty-eight hundredths, showing a trifling increase in cost over that of the previous year.

It is recommended that an act be passed authorizing the issue of tobacco to enlisted men of the Army, as a component part of the Army-ration, as near as may be in amount to that authorized to be sold to them.

Under the act approved March 3, 1873, to provide for the better care and protection of subsistence supplies, there have been appointed one hundred and forty-nine commissary-sergeants, who have been assigned to military posts. A considerable number of them have been in the performance of their duties a sufficient time to evidence to the Department the benefit that was anticipated from a body of experienced and worthy non-commissioned officers being in charge of this class of public property.

The Surgeon-General reports the following distribution of the first part of the Medical and Surgical History of the War, viz:

Sent to congressional committees as specimens	12
Sent Senators	1,000
Sent Representatives	2,000
Sent Library of Congress	50
Damaged and imperfect copies	70
To be issued by Surgeon-General's Office	1,868
Total number of copies printed	5,000

The second part of the work is now going through the press as rapidly as possible.

The recommendation made in former years is renewed, that the catalogue and tablets of the anatomical section of the Army Medical Museum be published in a style similar to Morton's Crania Americana. A bill for this purpose passed one house of Congress during the last session, but failed to become a law.

I am compelled to repeat the statement made in previous reports that very serious and increasing injury has resulted to the service from the continued prohibition of appointments and promotions in the Medical Corps. Thoroughly educated medical men, in selecting the Army as an occupation, are actuated by the reasonable prospect of promotion, but to render it impossible for them ever to advance in rank is to deter many desirable men from becoming candidates. I call attention most earnestly to the statement of the Surgeon-General as to the pressing necessity for such legislation as will secure to our

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officers and soldiers the efficient attendance in wounds and sickness which the Government should provide, and which will make a position in the Medical Corps of the Army now, as formerly, an object of ambition to the best educated and best qualified young men in the profession. There are now 64 vacancies in that corps, viz: 2 assistant medical purveyors, 5 surgeons, 56 assistant surgeons, and 1 medical store-keeper. In my judgment it is absolutely necessary for the welfare of the service that the corps be opened to appointment and promotion.

The Paymaster-General strongly urges the necessity of providing by legislation for an increase of the present force of paymasters, now much reduced by the operation of the act of March 3, 1869, prohibiting new appointments and promotions in certain staff corps and departments. The number of paymasters authorized by the Army organization act of July 28, 1866, was sixty. There are now but forty-four in service. The Paymaster-General recommends that the number be fixed by law at fifty-two, and that the sixth section of the act of March 3, 1869, be repealed, and promotions and new appointments be allowed.

Experience has shown that it is just that a greater period than thirty days be allowed to an officer on leave of absence without reduction of pay. Thirty days barely suffices to enable an officer to travel from and to his remote station in the West.

It is apparent that the act approved May 15, 1872, concerning the pay of enlisted men and establishing a system of deposits, has proved of much benefit to the soldier. The number of desertions has not been reduced to as great an extent as had been hoped, but still that number was five hundred less than in the year ending June 30, 1871. It would be difficult to devise legislation better calculated to encourage re-enlistments, reward faithful service, and diminish desertion, and it is believed its ultimate effect will be to heighten the tone of the whole enlisted force of the Army.

It appears from the report of the Paymaster-General that the average amount of deposits per company made by enlisted men during the past fiscal year was $482.26. The largest amounts of deposits per company were made in the Departments of Arizona and Columbia. In these departments there was the greatest amount of field operations. It may be safely inferred, then, that more deposits will be made by the enlisted men in time of war than in time of peace; and this leads to the conclusion that had a wise system of deposits been in operation in our volunteer Army during the rebellion, the Government would have had the handling of many millions of dollars for several years. During the last years of the war there were about 14,000 companies of troops employed, which would give, at the rate of $1,500 deposited by each company, $21,000,000 per annum.

The Corps of Engineers has been actively engaged upon the defensive works of our coasts; upon river and harbor improvements, and the surveys for them, and for the protection of the navigable waters of the

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United States against deterioration, whether from bridging or other causes; upon the geodetic and hydrographic survey of the lakes; upon surveys for the defenses of the coasts; upon military surveys and reconnoissances in the interior; upon geographical and geological explorations; upon public buildings and grounds in the District of Columbia; upon the construction of light-houses, and upon the demarkation of the boundary between the United States and Great Britain.

The works projected and approved for the modification and strengthening of our sea-coast defenses and fortifications have been advanced with a rapidity consistent with economy and efficiency, and the works for our principal harbors now contain quite a number of platforms ready for their armaments of guns of the largest calibers. Heavy guns mounted in covered positions, along the shores of the inlets to our harbors, must always be the basis of any successful defense, and the works projected and in course of construction should be prosecuted to completion, and be suitably armed.

The Battalion of Engineers numbers 308 enlisted men, and is stationed at the Military Academy for instruction of cadets, and at Willet's Point, New York Harbor, where it forms the school of torpedo defense of the channels to our harbors, and the guards and workmen for the care and distribution of engineer-equipments. During the past summer a number of detachments have served with advantage in the geographical and geodetic explorations. The appropriations asked for the engineer depot and post are recommended to Congress, and the recommendation for one chief musician and two principal musicians for the battalion approved.

With the small appropriations granted for trials with torpedoes, the investigations upon this subject have been continued, to the benefit of our system of submarine mines. This accessory for the defense of our harbors in recent years has developed into one of great importance among the maritime powers, and to investigate the recent electrical methods and systems of torpedoes, as well as to procure certain materials, two officers of engineers were sent during the summer to Europe. The results of their mission are the collection of valuable information on this subject, and a saving of expenditure to the Government.

The river and harbor improvements mentioned in my last annual report have been continued, and the works and surveys connected therewith have been carried on during the past year with vigor. Detailed information in regard to each specific improvement, and the results of surveys directed to be made by the river and harbor appropriation acts, may be found in the report of the Chief of Engineers.

The improvement of our rivers and harbors consists, chiefly, in giving increased width and depth to existing channel-ways and basins, and protecting them, or in creating new channels and basins and giving them protective works. The operations to this end comprise the removal of obstructions of various kinds, such as rock in place and bowlders,

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bars of clay, sometimes indurated; of gravel, sand, and other alluvial matter; of rafts, often extending from the surface of the river nearly to the bottom, formed by masses of drifting trees, or the accumulation of slabs, edgings, and sawdust; of timber and other constructions placed in channel-ways to obstruct or close them; the construction of dikes, dams, wing-dams, and revetments, and the building of canals, breakwaters, and piers, all tending to promote the general interests of commerce and navigation, by furnishing increased facilities of communication and giving greater security to trade.

The condition of the public works and grounds of Washington, and the progress made in their construction, repair, and improvement, are very creditable to the officer in charge. The improvements exhibit good taste, with much economy of expenditure. Many vacant and unimproved reservations have become attractive places of public resort, at little expense.

In accordance with the proviso attached to the appropriation for the improvement of the channel of the Delaware River at or near the Horseshoe Shoals, a board of engineers was convened; and in view of their report upon the feasibility and expense of the plan proposed for the prevention and removal of the obstruction, it has been determined to defer final action upon the proposed plan until after the method adopted by the local authorities is fully tested, and it is found that the means used by them will not be sufficient to maintain an open channel during the winter months.

Section 3 of the river and harbor act of March 3, 1873, directed that a report be made upon the practicability of bridging the channel between Lake Huron and Lake Erie, without material injury to the interests of navigation, and upon the number and character of vessels navigating that channel. The subject has been committed to a board of experienced engineer officers, who are now engaged upon it. It is expected that their report will be received during the early part of the session of Congress.

The removal of the wreck in the channel-way off Sandy Hook, required by the act approved January 3, 1873, was completed March 6, leaving a clear depth of 25½ feet at mean low water.

Under the authority granted by the act approved January 23, 1873, a contract was closed for the construction of an iron hull for a light-draught snag-boat for use on the Mississippi, Missouri, and Arkansas Rivers, and it is expected that the boat will be ready for service during the present season.

The Lake Ontario Shore Railroad Company submitted a project for a bridge across the Genesee River, and in accordance with the provisions of the second section of the act authorizing its construction approved March 3, 1873, certain modifications in the plan were required, and of these the president of the railroad company has been notified.

In carrying out the provisions of recent acts of Congress authorizing

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the construction of bridges, my attention has been called to the fact that certain bridges have been built, and that one is now being constructed across navigable waters of the United States without any authority of law; and further, that certain parties claim the right to bridge, and that one of those parties is now constructing a bridge under authority claimed to be derived from acts granting right of way for railroads through public lands and granting lands to aid in the construction of a road chartered by State authority. In view of the provisions of the more recent acts of Congress requiring the Secretary of War to maintain a supervision over the location and construction of bridges crossing navigable waters of the United States, in order that the interests of navigation shall be protected, I feel it my duty to invite the attention of Congress to this subject and to suggest such general legislation as may be deemed necessary for the preservation of the great natural channels of commerce.

In this connection I have respectfully to recommend that the act authorizing the construction of a bridge across the Arkansas River at Little Rock, Arkansas, approved May 31, 1872, be repealed, for the reason that a bridge constructed in compliance with its terms would materially obstruct and impair the navigation of the river. A previous act of Congress (that of July 1, 1870) contains all the provisions for bridging this river at Little Rock essential to the preservation of the channel.

The survey of the lakes has been continued with success during the season. The survey of Lake Michigan has been pushed forward nearly to completion, and that of the Saint Lawrence River has been extended nearly to Lake Ontario. Other portions of the survey are in satisfactory progress; new surveys of special localities have been made, the longitude of important points determined by telegraph; assistance to the geographical and geological survey of adjacent States rendered; and meteorological and lake-surface observations continued through the entire lake region.

The main field operations of the geological exploration near the fortieth parallel, between the Sierra Nevada and eastern slope of the Rocky Mountains, were completed in November last, and the maps and results are being prepared for publication at an early day. Special examinations, giving important results, have been made of noted geological structures, and of the evidences of glacial action in the Sierras.

The geographical and geological surveys and explorations west of the one-hundredth meridian in Nevada, Utah, Colorado, New Mexico, and Arizona, have been prosecuted with great vigor and success. The field labors terminated in December, after which the work of preparation of the maps and observations for publication was continued in the office in this city. The field operations of the present season, embracing, in addition to the usual observations in the various branches of the survey, the erection of a field astronomical observatory at Ogden, Utah, and the

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determination of an astronomical base, commenced June 1, with an efficient organization.

The officers of the Corps of Engineers on detached duty at the headquarters of general officers commanding military divisions and departments have rendered valuable services in preparing such maps and sketches and making such surveys and reconnaissances as were required by their commanding officers. Besides these regular duties, several special reconnaissances have been made, yielding important information. Among these the reconnaissance of the lava-beds and surrounding country, the scene of operations against the Modoc Indians; the survey of the Yellowstone River, as far up as practicable; the reconnaissance of the head-waters of the Rio Grande and Southwestern Colorado; and the reconnaissance to discover an approach to the Yellowstone Lake Basin from the south or southeast, thus opening a new and shorter route to the National Yellowstone Park and the mining regions of Montana, together with the results of astronomical observations to determine the positions of important points, are particularly referred to in the report of the Chief of Engineers.

The commission appointed by the President, in accordance with the act approved March 3, 1873, to examine and report on a system of irrigation in the San Joaquin, Tulare, and Sacramento Valleys, California, met and organized in San Francisco in May, and proceeded at once to examine the valleys in question and the streams emptying into them. By the end of June they had made satisfactory progress. They are still engaged in this labor, and in the collection of information to enable them to render a full report upon the subject of investigation.

A complete set of the published maps and reports of the Engineer Department, together with sets of photographic views of remarkable natural features of the western country, and models of important engineer work of river and harbor improvement, and of armament, were prepared and forwarded through the commissioner appointed by the President to represent the United States at the Vienna Exhibition, with authority to present them, at the close of the exhibition, to the engineer department of the Austrian army.

The estimates of the Chief of Engineers are submitted separately, as presented by that officer, viz:

Fortifications and other works of defense	$3,376,000
Public buildings and grounds and Washington aqueduct	1,118,056
Surveys	480,000
Engineer depot at Willet's Point, N. Y	20,800
Office expenses	29,260
Improvement of rivers and harbors	15,464,540
Total	20,488,656

No steps have been taken by me to carry out the provisions of the act of March 3, 1873, authorizing the survey, plat, and sale of the cemetery grounds upon the Fort Gratiot military reservation in Michigan,

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as the formal preliminary action of the city authorities of Port Huron has not yet been completed.

The report of the Chief of Ordnance calls attention to the many potent arguments so often presented in favor of the repeal of the law prohibiting promotions in the corps which he represents. He refers to the hardship and humiliation to which officers of merit and long service have been subjected since the passage of that law, by being deprived of their deserved promotion, the only reward held out in their profession for years of duty well performed. Their claims to promotion appeal strongly to the attention of Congress.

A board of experienced officers, of which Gen. A. H. Terry was president, was convened in September, 1872, for the selection of a breech-loading system for the muskets and carbines of the military service. After an exhaustive trial of all the systems presented, the board selected the Springfield breech-loading system as the one, of all those brought before it, which is best calculated to meet the demands of our military service.

The report of the board was approved, and the Springfield system of breech-loader will henceforth be used for the muskets and carbines of the Army. At the same time the caliber of all small-arms for the service—rifles, carbines, and revolvers—has been fixed at .45 of an inch. It is now a question of grave importance whether new arms of the accepted system shall not be made at once in sufficient quantities for a reserve supply in case of war, and to this end an appropriation of $500,000 has been asked for the next fiscal year for the manufacture, together with the materials now on hand, of about 35,000 arms.

The annual appropriation of $200,000 for arming and equipping the militia, an amount fixed by Congress during the early part of the century, is now found inadequate, by reason of the great increase of population, to supply the wants of the whole body of the militia, and it is therefore recommended that the appropriation for that purpose be increased in a manner proportioned to the increase of the population since the passage of the act of 1808, providing for the distribution of arms to the militia of the country.

I feel great hesitation in recommending increased appropriations at this time, but I deem it my duty to say that the armament of our sea-coast defenses, which involves the question of the defense of our principal sea-board cities from attack, in case of war with a naval power, is a subject demanding the earnest attention of Congress. The principal cities on our coast are in a very defenseless state, and the tedious and costly work of preparation cannot be commenced on the breaking out of a war, with the hope of accomplishing any adequate result. The work must be done in time of peace, without waiting for an uncertain period in search after perfection in gun-constructions. The importance of this subject increases with the earnest and continued efforts on the part of all nations to supply their forts with the most improved armament, and

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should war find this country without a proper defense against iron-clads and their great guns, the responsibility cannot rest on this Department, as the importance of the subject has often been brought to the attention of Congress. An appropriation of $1,449,552 is estimated for by the Chief of Ordnance for the next fiscal year for the purchase of smooth-bore guns and for carriages, which sum will provide for one-sixth, only, of the guns and carriages that will be required for fortifications which will be ready by the 30th of June, 1874. This amount is not embraced in the regular estimates of appropriations for the Army, as heretofore alluded to, but it is a subject of great importance, and the question of these appropriations is respectfully submitted.

The heavy rifled guns selected for fabrication and test under the act approved June 6, 1872, are now in process of manufacture, and will be completed during the winter. Valuable information and experience are to be gathered in the trial of these guns, the result most probably leading to the early adoption of an effective rifle of suitable caliber for the service; and in this connection I would recommend the purchase of a suitable proving ground for the proper trial of these experimental heavy guns.

The cheapness of cast iron, and the marked progress attained in the manufacture of gunpowder in the past year, induces a recommendation that an appropriation of $75,000 be granted, to be applied in the fabrication and trial of 12-inch cast-iron rifled cannon, that the capabilities of the metal for rifle constructions of large caliber may be put to the fullest test, in the hope that its practical utilization for this purpose may be conclusively assured or denied.

The powder in the hands of the Department is, on account of the want of proper storage-room, concentrated in large part in the magazines of our sea-coast fortifications, where, under the searching influences of the salt air, it is rapidly undergoing deterioration. For its better preservation a large powder-depot should be established in some region where neither public nor private interests would be endangered by its proximity, and an appropriation of $100,000 is recommended for the purchase of a suitable site and the commencement of magazines.

The abolition of some of the smaller arsenals, and the application of the proceeds of their sale to the erection of a large arsenal of construction on the Atlantic coast, is again urged on strong economical grounds, and it is recommended that a law be passed authorizing the Secretary of War to make sale of any of the smaller arsenals at such times as would be most advantageous to the Government, and to apply the proceeds as suggested.

The sale of Kennebec arsenal, Detroit arsenal, Pikesville arsenal, and the small lot or tract at Sag Harbor, Long Island, now no longer needed for public purposes, is recommended.

By the act of Congress approved June 10, 1872, the Secretary of War was directed to sell the Mount Vernon arsenal, Alabama, pursuant to

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a recommendation made for its disposal as a part of the public domain. Subsequent to such recommendation the exigencies of the service required that the property should be used by the Quartermaster's Department for military purposes, and the period when such necessity shall cease to exist is very indefinite. Under these circumstances the repeal of so much of the act of June 10, 1872, as relates to the sale of this property is recommended.

That portion of the same act which directs the sale of the Apalachicola arsenal should, in my opinion, be repealed, for the reason that the property was granted to the State of Florida in 1870, by the act approved December 15 of that year, under the name of the Chattahoochee arsenal.

The Department feels much embarrassment arising from conflicting claims founded on alleged infringements of patent-rights in the construction of breech-loading guns at the national armory. Officers of the Ordnance Corps, in the execution of their official duties, are seriously annoyed by private actions for damages, instituted by persons claiming to hold valid patents which have been infringed in the productions of the Government armory, and some legislation seems to be required in order to enable the Department to dispose of the claims.

The fifth section of the act of July 12, 1870, which provides "That all balances of appropriations contained in the annual appropriation bills and made specifically for the service of any fiscal year, and remaining unexpended at the expiration of such fiscal year, shall only be applied to the payment of expenses properly incurred during that year, or to the fulfillment of contracts properly made within that year, and such balances not needed for the said purposes shall be carried to the surplus fund: *Provided*, That this section shall not apply to appropriations known as permanent or indefinite appropriations," is injurious to the interests of the Government where permanent buildings are to be erected, and appropriations for this purpose should be allowed to run for three years instead of one, as now limited by that act. It recommended that the act be modified accordingly.

Systematic and continuous instruction of the Army in military signaling and telegraphy has continued during the past year at the school of instruction and practice at Fort Whipple, Va., and in the Department of the Missouri, and the special attention of some of the most powerful foreign goverments has been directed to these branches of military science, and they have taken pains to procure the minute details of our equipment and apparatus.

Recruiting for the signal-service has been successfully conducted, the standard of acquirement being maintained by special examination of those enlisted. After selection and enlistment, the men are at once placed under a course of drill and instruction, and after a second examination those especially designated for duty at stations are drilled, examined, instructed, tested by practice, instructed in the higher

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branches of the service, and again examined and tested before being intrusted with the management of stations of observation.

The Chief Signal-Officer renews his recommendation for the establishment by law of a permanent Signal Corps, or for such legislation as will secure a permanency for its details. He insists that the extent of the service and its now material importance should commend this subject to the attention of Congress.

The whole number of stations from which regular meteoric reports are now received is ninety-two, of which seventy-eight are in the United States, eleven in Canada, and three in the West Indies.

The regular telegraphic reports from Havana began on August 6, from Kingston, Jamaica, on September 18, and from Santiago de Cuba on September 29. Three other points in the islands of Porto Rico, Guadeloupe, and Barbados, will be equipped as soon as observers can be designated. It is a matter of regret that there is no international arrangement with the authorities of any of these islands, nor is there, at present, any return of weather-telegrams provided for or officially requested, Steps are in contemplation by which it is hoped the necessary arrangements will be effected.

The display of bulletins and weather-charts at stations, the supply of prompt and gratuitous information to the press, and the exhibition of day or night signals at times of probable special danger, for the benefit of shipping and commercial interests, have been continued.

A plan has been adopted whereby synopses of reports and probabilities have been forwarded to many points in the interior not reached by telegraph, and this plan has given satisfaction to the farming and interior population reached.

There are nineteen special river stations from which reports of the depths of water in the principal rivers of the United States are daily made by telegraph, at particular seasons, during which danger from freshets may be anticipated. River reports are also made from twenty of the regular stations.

These data are widely published and distributed along the line of the rivers, and contribute to the convenience and safety of the river commerce, by the constant and accurate knowledge given of the depth of water in the channels.

The benefits resulting from these reports, now in the second year of their issue, have been fully acknowledged by the various interests they have advanced.

The total number of special river-bulletins issued has been twenty-three thousand two hundred and ten. Eight thousand nine hundred and eighty-two printed copies of the weather-report are displayed daily.

Steps have been taken to carry out the legislation of the last Congress authorizing the establishment of signal stations at light-houses, and such of the life-saving stations on the lake or sea coasts as may be suit-

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ably located for that purpose, and to connect the same with such points as may be necessary for the proper discharge of the duties of the signal service, by means of a suitable telegraph-line, in cases where no lines are in operation. The plan in contemplation proposes the establishment of signal stations at life-saving stations and light-houses along the ocean-coast of New Jersey, from Sandy Hook to Cape May, a distance of twenty-five miles from each other. A line connecting the stations at life-saving stations and light-houses along the coast from Norfolk, Va., to Cape Hatteras, N. C., a distance of one hundred and thirty-seven miles, and on one of the most dangerous coasts of the United States, is being constructed. It is expected that the above-mentioned lines will be completed during the present year.

The ascertained comparative accuracy of the deductions from reports styled "probabilities" has been more clearly presented in this than in preceding years. The percentage of verifications has been mathematically computed for each of the geographical districts mentioned in the reports. With a more rigid and scrutinizing mode of calculation than was before adopted, the percentage of verification has improved. The analysis of the year's work indicates clearly, at once, the wisdom of judiciously increasing the number of stations.

The Department acknowledges, as in previous years, the general support of the popular opinion of scientific men, and of the press, in its efforts to successfully carry on this work. Errors have occurred, but it has been generally recognized as inevitable that some must occur in the present condition of science. The great utility of the work is no longer doubted. It has achieved results, the promise of which, a few years ago, could hardly be hoped for.

It is mentioned in connection with this subject that arrangements have been made with the meteorological officers of Russia, England, and Turkey, to commence on January 1, 1874, an exchange with the United States of the daily reports taken simultaneously at the different stations throughout the great extent of the Russian and Turkish Empires, the British Islands, and the United States. The co-operation of the systems of other nations is expected.

My annual inspection of the affairs of the Military Academy and Corps of Cadets, in June last, disclosed a very creditable state of discipline, and an attention to study very commendable in the cadets.

One of the effects of the act of Congress approved February 2, 1872, increasing the congressional representation of the several States, was to increase the Corps of Cadets from 293 to 342. This is of marked advantage to the Academy, which, on account of the falure of many of the candidates for admission to pass the necessary examination, has not, in a long series of years, instructed the number of young men that was allowed by law to be educated at West Point. Examinations for admission are held twice yearly, in May or June and in September, and when a candidate not possessing the requisite qualifications fails to pass, as a

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large portion of those presenting themselves have done, their districts remain unrepresented during the period embraced between the date when they fail and the next examination, and the United States loses a cadet for the same period.

The report of the Board of Visitors, which this year had an opportunity of witnessing the examination of the candidates, comments upon the large proportion of those failing to those admitted; during the past year there were 119 candidates admitted and 87 rejected; of the latter number 13 only were rejected by the medical board; and at the semi-annual examination in January next it is more than probable that a considerable number of those admitted in June and September last will also fail. These facts furnish a strong commentary upon the present mode of selecting candidates for a military education at West Point.

The large number of those failing to meet the present standard clearly shows that due regard has not, in many cases, been paid to selecting those whose attainments qualify them for admission. If the members of Congress were a little more rigid in requiring those they propose nominating to be thoroughly conversant with the rudiments of a common-school education, their friends would escape the mortification and expense attendant on their rejection.

The Board of Visitors were thorough in their investigation into the affairs of the academy last June, and the attention of Congress is invited to the recommendations contained in their report.

A new set of regulations for the government of the Corps of Cadets has been prepared, and will very shortly go into execution.

The increase of the Military Academy band, the only one now provided for by law, which is very small and the pay of which is wholly insufficient to attract to or retain in the service competent musicians, when they can secure much larger salaries in the principal cities of the Union, is again urgently recommended to the attention of Congress. This subject was alluded to in my last annual report, and a bill was introduced to increase the number and compensation of the musicians, which, it is understood, passed one house of Congress, but was not taken up in the other. Its re-introduction and passage is earnestly recommended.

During the last session of Congress, the Committee on Expenditures of the War Department made an exhaustive report of the workings of this portion of the executive branch of the Government, and prepared a bill for a full and complete reorganization of the clerical force of the War Department.

I would earnestly represent that this Department has been peculiarly unfortunate as regards the rates of compensation paid its employés. It is hoped, therefore, that the report of the Committee on Expenditures of the War Department, above referred to, may receive careful consideration at the hands of Congress, and that action be taken upon the recommendations of the committee as to the required organization of the clerical force.

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When from illness or other cause the Secretary of War is obliged to be temporarily absent, there is no person in the Department authorized by law to sign the money requisitions upon the Treasury and other papers necessary for its current business. In almost all the other Departments of the Government one or more assistant secretary is provided by law, who is authorized to perform such duties in the absence of the head of the Department. There is no assistant secretary for the War Department; and in order that inconvenience to individuals as well as to the Government may not arise from delay caused by such absence, I recommend the passage of a law which will permit the Secretary of War to authorize the chief clerk, in case of illness or other temporary absence of the head of the Department, to sign requisitions and other papers deemed necessary for immediate signature.

I again refer to the fact that by joint resolution of Congress the Secretary of War was required to appoint a competent person to arrange and prepare for publication the official documents relating to the rebellion and the operations of the Army during the war, and to submit a plan of said publication and estimates of the cost thereof to Congress at its then next session. A person was appointed to assume this work, who was to receive a compensation of $2,500 per annum. Although the appointment was made at that time, no acceptance was filed, and no action was taken toward the arrangement and publication of the records.

As the appointment, under previous legislation, cannot now be made, for the reason that the act prescribed that payments should cease in two years after its passage, this legislation should be revived and the Secretary of War authorized to make the appointment. This is a great national work, of much historical value, and constant daily observation and experience renders it evident that early steps should be taken to collect and prepare these vast and important materials for publication.

WM. W. BELKNAP,
Secretary of War.

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REPORT OF THE GENERAL OF THE ARMY.

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REPORT

OF

THE GENERAL OF THE ARMY.

HEADQUARTERS OF THE ARMY,
Washington, D. C., November 7, 1873.

SIR: I have the honor herewith to submit a statement showing the organization and actual strength of enlisted men in the Army, compiled from the official returns up to the latest date, and invite your attention to the recapitulation, showing 25,535 enlisted men of cavalry, artillery, and infantry, and 3,970 non-combatants, the whole aggregating 29,505, or 495 less than the number, 30,000, limited by law. In the active regiments the number of men sick and on the necessary details about the posts will fully equal 25 per cent., so that the actual strength for military service does not exceed 19,654 men.

In order that the Regular Army should fulfill its arduous duties on the frontier, as also form the model on which to shape the volunteer and militia forces of the United States, I earnestly recommend that Congress be asked to fix the limit of the enlisted force at such a figure as will give 30,000 men for the regiments of the line, and to provide specifically for the non-combatant detachments, such as the Engineer Battalion, the Ordnance Department, West Point detachments, Signal Department, ordnance and commissary sergeants, in the same manner as has been done for the hospital stewards.

The artillery regiments have an organization different from the infantry, viz, twelve batteries to a regiment. But of these only one is equipped and instructed as a battery of artillery, the other eleven companies of each regiment being armed with muskets, and instructed as infantry. In order to simplify the organization, and to apply the new tactics (now approaching completion) to all arms of service alike, with your approval I have ordered that the word "battery" apply technically to such only as are provided with horses and guns, and all others to be called companies. Some of the artillery officers think that the act of July 28, 1866, entitles them to the name "battery," whether they have guns or not, and it might be well to ask a modification of the law, so as to read "battery or company" for the artillery regiments, to correspond with the words "troop or company" used for the cavalry in the same act.

The number of regimental commissioned officers on duty, or belonging to the several departments and divisions, number in the aggregate 1,532; present for duty, 1,234; absent on leave or detached, 298.

The foregoing does not include the thirty-one second lieutenants recently appointed from civil life, now under orders to join their regiments.

I now inclose the annual reports of the division and department commanders, copies of which have been submitted to you as received.

The military divisions embrace the whole area of the United States, and these reports include the acts of all of the Regular Army, leaving

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nothing to be added by way of history of the events during the past year.

The reports of all the department commanders, with the exception of that of the Department of Columbia, not yet received, are also herewith sent.*

No part of the Army is under my immediate control, and the existing Army regulations devolve on the Secretary of War the actual command of the military peace establishment, and all responsibility therefor, so that I forbear making any further recommendations or report.

I have the honor to be your obedient servant,

W. T. SHERMAN, *General.*

Hon. W. W. BELKNAP,
Secretary of War.

Statement showing the organization and strength of enlisted men in the Army, compiled from returns received at the Adjutant-General's Office up to October 31, 1873.

FIRST REGIMENT OF CAVALRY.

Companies, &c.	Enlisted men present and absent.	Date of report.	Station.
Headquarters	.....	Aug. 31, 1873	Benicia Barracks, Cal.
Non-commissioned staff and band.	15	.....do.....	Do.
A	73	.....do.....	Do.
B	66	.....do.....	Fort Klamath, Oreg.
C	63	.....do.....	Camp McDermit, Nev.
D	64	.....do.....	Benicia Barracks, Cal.
E	57	.....do.....	Fort Lapwai, Idaho.
F	53	.....do.....	Fort Walla-Walla, Wash.
G	54	.....do.....	Camp Harney, Oreg.
H	50	.....do.....	Do.
I	54	.....do.....	Camp Halleck, Nev.
K	62	.....do.....	Camp Harney, Oreg.
L	59	.....do.....	Fort Walla-Walla, Wash.
M	56	.....do.....	Do.
	25	.....	100 recruits left Saint Louis Barracks March 4, 1873; 75 joined.
	2	.....	Recruits left Saint Louis Barracks August 16, 1873.
	7	.....	Recruits left San Francisco July, 1873.
	4	.....	Musicians left Saint Louis Barracks September 18, 1873.
	100	.....	Recruits left New York City October, 1873.
			100 recruits ordered October 21, 1873.
Total	864		

SECOND REGIMENT OF CAVALRY.

Headquarters	.....	Aug. 31, 1873.	Fort Sanders, Wyo.
Non-commissioned staff and band.	21	.....do.....	Do.
A	67	.....do.....	Fort Fred Steele, Wyo.
B	66	.....do.....	Camp Brown, Wyo.
C	63	.....do.....	Omaha Barracks, Nebr.
D	65	.....do.....	Camp Douglas, Utah.
E	70	.....do.....	Fort Laramie, Wyo.
F	58	.....do.....	Fort Ellis, Mont.
G	59	.....do.....	Do.
H	59	.....do.....	Do.
I	69	.....do.....	Fort Sanders, Wyo.
K	67	.....do.....	Fort Laramie, Wyo.
L	56	.....do.....	Fort Ellis, Mont.
M	80	.....do.....	Omaha Barracks, Nebr.
	72	.....	100 recruits left New York City July 29, 1873; 28 joined.
	11	.....	Unassigned recruits.
	2	.....	Musicians left New York City October 21, 1873.
Total	885		

* The report of the Department of Columbia received and forwarded November 15, 1873.

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Statement showing the organization and strength of enlisted men in the Army, &c.—Continued.

THIRD REGIMENT OF CAVALRY.

Companies, &c.	Enlisted men present and absent.	Date of report.	Station.
Headquarters	.....	Aug. 31, 1873	Fort McPherson, Nebr.
Non-commissioned staff and band.	22	....do	Do.
A	75	....do	Sidney Barracks, Nebr.
B	67	....do	Fort McPherson, Nebr.
C	67	....do	Fort Fetterman, Wyo.
D	70	....do	Fort D. A. Russell, Wyo.
E	67	....do	Fort Sanders, Wyo.
F	82	....do	Fort McPherson, Nebr.
G	65	....do	Fort D. A. Russell, Wyo.
H	60	....do	Do.
I	69	....do	Fort McPherson, Nebr.
K	83	....do	Do.
L	49	....do	Fort D. A. Russell, Wyo.
M	75	....do	Fort McPherson, Nebr.
	20	.....	50 recruits left Saint Louis Barracks August 18, 1873; 30 joined.
	50	.....	Recruits left New York City August 28, 1873.
Total	921		

FOURTH REGIMENT OF CAVALRY.

Headquarters	.....	Aug. 31, 1873	Fort Clark, Tex.
Non-commissioned staff and band.	19	....do	Do.
A	69	....do	Do.
B	66	....do	Do.
C	71	....do	Do.
D	65	....do	Do.
E	61	....do	Fort Duncan, Tex.
F	69	....do	Fort Clark, Tex.
G	67	....do	Do.
H	71	....do	Do.
I	64	....do	Do.
K	70	....do	Do.
L	70	....do	Do.
M	71	....do	Fort Duncan, Tex.
	40	.....	Recruits left New York City April 27, 1873.
Total	873		

FIFTH REGIMENT OF CAVALRY.

Headquarters	.....	Aug. 31, 1873	Tucson, Aris.
Non-commissioned staff and band.	26	....do	Do.
A	74	....do	Camp Verde, Ariz.
B	71	....do	Camp Apache, Aris.
C	71	....do	Do.
D	75	....do	Camp Bowie, Ariz.
E	67	....do	Camp McDowell, Aris.
F	67	....do	Camp Grant, Ariz.
G	71	....do	Fort Whipple, Ariz.
H	70	....do	Camp Lowell, Ariz.
I	64	....do	Camp Grant, Ariz.
K	83	....do	Camp Verde, Ariz.
L	76	....do	Camp Grant, Ariz.
M	58	....do	Do.
	80	.....	Recruits left New York City September 22, 1873.
	2	.....	Musicians left Saint Louis Barracks September 20, 1873.
	40	.....	Recruits left Saint Louis Barracks September 23, 1873.
Total	995		

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Statement showing the organization and strength of enlisted men in the Army, &c.—Continued.

SIXTH REGIMENT OF CAVALRY.

Companies, &c.	Enlisted men present and absent.	Date of report.	Station.
Headquarters	.....	Aug. 31, 1873	Fort Hays, Kans.
Non-commissioned staff and band.	25	.....do	Do.
A	71	.....do	Fort Wallace, Kans.
B	75	.....do	Fort Hays, Kans.
C	70	.....do	Do.
D	68	.....do	Do.
E	67	.....do	Fort Gibson, Ind. T.
F	69	.....do	Fort Hays, Kans.
G	67	.....do	Fort Dodge, Kans.
H	70	.....do	Fort Lyon, Colo.
I	75	.....do	Camp Supply, Ind. T.
K	70	.....do	Do.
L	77	.....do	Fort Riley, Kans.
M	72	.....do	Fort Lyon, Colo.
Total	876		

SEVENTH REGIMENT OF CAVALRY.

Headquarters	.....	Aug. 31, 1873	Saint Paul, Minn.
Non-commissioned staff and band.	59	.....do	Do.
A	65	.....do	Fort A. Lincoln, Dak.
B	58	.....do	Do.
C	55	.....do	Fort Rice, Dak.
D	68	.....do	Fort Pembina, Dak.
E	60	.....do	Fort A. Lincoln, Dak.
F	68	.....do	Do.
G	67	.....do	Do.
H	71	.....do	Fort Rice, Dak.
I	72	.....do	Fort Pembina, Dak.
K	66	.....do	Fort Rice, Dak.
L	66	.....do	Fort A. Lincoln, Dak.
M	53	.....do	Fort Rice, Dak.
	1	.....	Recruit left Saint Louis Barracks July 5, 1873.
	111	.....	Recruits left Saint Louis Barracks October 13, 1873.
	100	.....	Recruits left New York City October 12, 1873.
Total	1,040		

EIGHTH REGIMENT OF CAVALRY.

Headquarters	.....	Aug. 31, 1873	Fort Union, N. Mex.
Non-commissioned staff and band.	18	.....do	Do.
A	64	.....do	Fort Bayard, N. Mex.
B	63	.....do	Fort Union, N. Mex.
C	67	.....do	Fort Selden, N. Mex.
D	65	.....do	Fort Stanton, N. Mex.
E	64	.....do	Fort Wingate, N. Mex.
F	65	.....do	Fort Garland, Colo.
G	55	.....do	Fort Selden, N. Mex.
H	60	.....do	Fort McRae, N. Mex.
I	60	.....do	Fort Bayard, N. Mex.
K	54	.....do	Fort Wingate, N. Mex.
L	63	.....do	Fort Union, N. Mex.
M	67	.....do	Do.
	19	.....	100 recruits left Saint Louis Barracks July 22, 18[illegible] joined.
			220 recruits ordered October 29, 1873.
	784		

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Statement showing the organization and strength of enlisted men in the Army, &c.—Continued.

NINTH REGIMENT OF CAVALRY.

Companies, &c.	Enlisted men present and absent.	Date of report.	Station.
Headquarters	.....	Aug. 31, 1873	Ringgold Barracks, Tex.
Non-commissioned staff and band.	23	....do	Do.
A	58	....do	Fort Concho, Tex.
B	62	....do	Ringgold Barracks, Tex.
C	45	....do	Do.
D	60	....do	Fort Stockton, Tex.
E	61	....do	Fort Concho, Tex.
F	60	....do	Do.
G	55	....do	Ringgold Barracks, Tex.
H	52	....do	Do.
I	59	....do	Fort Davis, Tex.
K	49	....do	Fort Brown, Tex.
L	62	....do	Ringgold Barracks, Tex.
M	55	....do	Fort Concho, Tex.
			All disposable recruits ordered September 16, 1873.
Total	701		

TENTH REGIMENT OF CAVALRY.

Headquarters	.....	Aug. 31, 1873	Fort Sill, Ind. T.
Non-commissioned staff and band.	27	....do	Do.
A	67	....do	Fort Concho, Tex.
B	59	....do	Fort Sill, Ind. T.
C	57	....do	Fort Griffin, Tex.
D	56	....do	Do.
E	55	....do	Fort Richardson, Tex.
F	59	....do	Fort Concho, Tex.
G	58	....do	Fort Sill, Ind. T.
H	61	....do	Do.
I	52	....do	Fort Richardson, Tex.
K	54	....do	Fort Sill, Ind. T.
L	59	....do	Fort Richardson, Tex.
M	58	....do	Fort Sill, Ind. T.
	86	.....	Recruits left Saint Louis Barracks August 24, 1873.
Total	906		

FIRST REGIMENT OF ARTILLERY.

Headquarters	.....	Aug. 31, 1873.	Charleston, S. C.
Non-commissioned staff and band.	24	....do	Do.
A	38	....do	Fort Barrancas, Fla.
B	49	....do	Saint Augustine, Fla.
C	53	....do	Do.
D	53	....do	Savannah, Ga.
E	39	....do	Key West, Fla.
F	33	....do	Fort Barrancas, Fla.
G	55	....do	Fort Monroe, Va.
H	49	....do	Charleston, S. C.
I	41	....do	Key West, Fla.
K	67	....do	Charleston, S. C.
L	43	....do	Fort Barrancas, Fla.
M	50	....do	Fort Jefferson, Fla.
	25	.....	Recruits attached to Company G for instruction.
		.....	30 recruits ordered to Battery K, October 7, 1873.
Total	619		

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Statement showing the organization and strength of enlisted men in the Army, &c.—Continued.

SECOND REGIMENT OF ARTILLERY.

Companies, &c.	Enlisted men present and absent.	Date of report.	Station.
Headquarters	.....	Aug. 31, 1873..	Fort McHenry, Md.
Non-commissioned staff and band.	28	.....do	Do.
A	69	.....do	Do.
B	56	.....do	Fort Foote, Md.
C	51	.....do	Fort McHenry, Md.
D	42	.....do	Charleston, S. C.
E	53	.....do	Fort Macon, N. C.
F	54	.....do	Raleigh, N. C.
G	48	.....do	Do.
H	53	.....do	Fort McHenry, Md.
I	51	.....do	Raleigh, N. C.
K	50	.....do	Fort Monroe, Va.
L	48	.....do	Fort Macon, N. C.
M	58	.....do	Fort Johnston, N. C.
	7	.....	Unassigned recruits.
	28	.....	Recruits attached to Company K for instruction.
	26	.....	Recruits left Fort Columbus, October 9, 1873, for Battery A.
Total	722		

THIRD REGIMENT OF ARTILLERY.

Headquarters	.....	Aug. 31, 1873	Fort Hamilton, New York Harbor.
Non-commissioned staff and band.	25	.....do	Do.
A	56	.....do	Fort Monroe, Va.
B	50	.....do	Fort Niagara, N. Y.
C	67	.....do	Fort Hamilton, New York Harbor.
D	32	.....do	Madison Barracks, N. Y.
E	36	.....do	Fort Hamilton, New York Harbor.
F	32	.....do	Fort Ontario, N. Y.
G	40	.....do	Fort Hamilton, New York Harbor.
H	41	.....do	David's Island, New York Harbor.
I	45	.....do	Fort Hamilton, New York Harbor.
K	55	.....do	Fort Wadsworth, New York Harbor.
L	45	.....do	Fort Wood, New York Harbor.
M	36	.....do	Fort Wadsworth, New York Harbor.
	1	.....	Musician left Fort Columbus September 11, 1873.
	29	.....	Recruits attached to Company A for instruction.
	3	.....	Recruits left Fort Columbus October 28, 1873.
Total	593		

FOURTH REGIMENT OF ARTILLERY.

Headquarters	.....	Aug. 31, 1873	Presidio, San Francisco, Cal.
Non-commissioned staff and band.	20	.....do	Do.
A	35	.....do	Do.
B	82	.....do	Do.
C	43	.....do	Sitka, Alaska.
D	50	.....do	Do.
E	60	.....do	Fort Stevens, Oreg.
F	54	.....do	Alcatraz Island, Cal.
G	53	.....do	Point San José, Cal.
H	48	.....do	Fort Cape Disappointment, Wash.
I	51	.....do	Fort Monroe, Va.
K	39	.....do	Presidio, Cal.
L	48	.....do	Alcatraz Island, Cal.
M	44	.....do	Presidio, Cal.
	8	.....	Unassigned recruits.
	28	.....	Recruits attached to Company I for instruction.
Total	663		

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Statement showing the organization and strength of enlisted men in the Army, &c.—Continued.

FIFTH REGIMENT OF ARTILLERY.

Companies, &c.	Enlisted men present and absent.	Date of report.	Station.
Headquarters	.....	Aug. 31, 1873.	Fort Adams, R. I.
Non-commissioned staff and band.	21	....do....	Do.
A	42	....do....	Do.
B	49	....do....	Do.
C	49	....do....	Fort Monroe, Va.
D	43	....do....	Fort Warren, Mass.
E	48	....do....	Fort Independence, Mass.
F	67	....do....	Fort Adams, R. I.
G	49	....do....	Plattsburgh Barracks, N. Y.
H	39	....do....	Fort Trumbull, Conn.
I	40	....do....	Do.
K	44	....do....	Madison Barracks, N. Y.
L	44	....do....	Fort Adams, R. I.
M	31	....do....	Fort Preble, Me.
	27	.....	Recruits attached to Company C for instruction.
	3	.....	Recruits left Fort Columbus September 15, 1873.
Total	609		

FIRST REGIMENT OF INFANTRY.

Headquarters	.....	Aug. 31, 1873	Fort Wayne, Mich.
Non-commissioned staff and band.	27	....do....	Do.
A	36	....do....	Fort Porter, N. Y.
B	39	....do....	Madison Barracks, N. Y.
C	51	....do....	Fort Porter, N. Y.
D	32	....do....	Fort Wayne, Mich.
E	36	....do....	Do.
F	35	....do....	Fort Mackinac, Mich.
G	48	....do....	Fort Brady, Mich.
H	42	....do....	Fort Gratiot, Mich.
I	51	....do....	Fort Wayne, Mich.
K	25	....do....	Fort Brady, Mich.
Total	422		

SECOND REGIMENT OF INFANTRY.

Headquarters	.....	Aug. 31, 1873	Mount Vernon Barracks, Ala.
Non-commissioned staff and band.	25	....do....	Do.
A	50	....do....	Atlanta, Ga.
B	50	....do....	Do.
C	50	....do....	Huntsville, Ala.
D	49	....do....	Atlanta, Ga.
E	38	....do....	Chattanooga, Tenn.
F	44	....do....	Atlanta, Ga.
G	46	....do....	Mount Vernon Barracks, Ala.
H	43	....do....	Atlanta, Ga.
I	43	....do....	Do
K	49	....do....	Mount Vernon Barracks, Ala.
Total	487		

THIRD REGIMENT OF INFANTRY.

Headquarters	.....	Aug. 31, 1873	Fort Riley, Kansas.
Non-commissioned staff and band.	21	....do....	Do.
A	50	....do....	Fort Dodge, Kans.
B	53	....do....	Camp Supply, Ind. T.
C	52	....do....	Fort Riley, Kans.
D	41	....do....	Camp Supply, Ind. T.
E	47	....do....	Fort Riley, Kans.
F	48	....do....	Fort Lyon, Colo.
G	43	....do....	Do.
H	44	....do....	Fort Wallace, Kans.
I	36	....do....	Camp Supply, Ind. T.
K	46	....do....	Fort Leavenworth, Kans.
Total	481		

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Statement showing the organization and strength of enlisted men in the Army, &c.—Continued.

FOURTH REGIMENT OF INFANTRY.

Companies, &c.	Enlisted men present and absent.	Date of report.	Station.
Headquarters	.....	Sept. 30, 1873	Fort Bridger, Wyo.
Non-commissioned staff and band.	20	.....do.....	Do.
A	46	.....do.....	Fort Fetterman, Wyo.
B	58	.....do.....	Fort Bridger, Wyo.
C	58	.....do.....	Do.
D	58	.....do.....	Fort D. A. Russell, Wyo.
E	58	.....do.....	Do.
F	40	.....do.....	Fort Fetterman, Wyo.
G	59	.....do.....	Fort Sanders, Wyo.
H	46	.....do.....	Camp Douglas, Utah.
I	59	.....do.....	Fort Sanders, Wyo.
K	59	.....do.....	Fort Bridger, Wyo.
	53	.....	Unassigned recruits.
Total	614	.....	

FIFTH REGIMENT OF INFANTRY.

Headquarters	.....	Aug. 31, 1873	Fort Leavonworth, Kans.
Non-commissioned staff and band.	18	.....do.....	Do.
A	57	.....do.....	Do.
B	56	.....do.....	Fort Gibson, Ind. T.
C	45	.....do.....	Fort Larned, Kans.
D	45	.....do.....	Fort Dodge, Kans.
E	45	.....do.....	Fort Larned, Kans.
F	52	.....do.....	Do.
G	54	.....do.....	Fort Leavenworth, Kans.
H	57	.....do.....	Do.
I	50	.....do.....	Do.
K	57	.....do.....	Do.
	8	.....	Unassigned recruits.
Total	544		

SIXTH REGIMENT OF INFANTRY.

Headquarters	.....	Aug. 31, 1873	Fort Buford, Dak.
Non commissioned staff and band.	22	.....do.....	Do.
A	53	.....do.....	Do.
B	55	.....do.....	Fort Abraham Lincoln, Dak.
C	49	.....do.....	Fort Buford, Dak.
D	57	.....do.....	Do.
E	59	.....do.....	Do.
F	58	.....do.....	Do.
G	58	.....do.....	Do.
H	57	.....do.....	Fort Stevenson, Dak.
I	58	.....do.....	Fort Buford, Dak.
K	56	.....do.....	Fort Stevenson, Dak.
	1	.....	Musician left Fort Columbus October 28, 1873.
Total	583		

SEVENTH REGIMENT OF INFANTRY.

Headquarters	.....	Aug. 31, 1873	Fort Shaw, Mont.
Non-commissioned staff and band.	20	.....do.....	Do.
A	58	.....do.....	Fort Ellis, Mont.
B	57	.....do.....	Fort Benton, Mont.
C	56	.....do.....	Fort Shaw, Mont.
D	58	.....do.....	Do.
E	59	.....do.....	Do.
F	58	.....do.....	Do.
G	58	.....do.....	Do.
H	53	.....do.....	Camp Baker, Dak.
I	54	.....do.....	Fort Shaw, Mont.
K	58	.....do.....	Do.
Total	589	.....	

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Statement showing the organization and strength of enlisted men in the Army, &c.—Continued.

EIGHTH REGIMENT OF INFANTRY.

Companies, &c.	Enlisted men present and absent.	Date of report.	Station.
Headquarters	.....	Sept. 30, 1873	Fort D. A. Russell, Wyo.
Non-commissioned staff and band.	21	.....do	Do.
A	41	.....do	Camp Stambaugh, Wyo.
B	47	.....do	Fort D. A. Russell, Wyo.
C	41	.....do	Do.
D	55	.....do	Beaver City, Utah.
E	51	.....do	Do.
F	32	.....do	Fort D. A. Russell, Wyo.
G	55	.....do	Beaver City, Utah.
H	47	.....do	Fort D. A. Russell, Wyo.
I	50	.....do	Beaver City, Utah.
K	53	.....do	Fort D. A. Russell, Wyo.
	7	.....	Unassigned recruits.
	6	.....	Musicians left Fort Columbus September 29, 1873.
	1	.....	Musician left Newport Barracks October 22, 1873.
Total	507		

NINTH REGIMENT OF INFANTRY.

Headquarters	.....	Sept. 30, 1873	Omaha Barracks, Nebr.
Non-commissioned staff and band.	19	.....do	Do.
A	57	.....do	Do.
B	53	.....do	Do.
C	60	.....do	Do.
D	44	.....do	Do.
E	51	.....do	Do.
F	43	.....do	Do.
G	46	.....do	Fort D. A. Russell, Wyo.
H	38	.....do	Omaha Barracks, Nebr.
I	37	.....do	Do.
K	56	.....do	Fort Fred Steele, Wyo.
	2	.....	Unassigned recruits.
	1	.....	Recruit left Newport Barracks September 22, 1873.
Total	507		

TENTH REGIMENT OF INFANTRY.

Headquarters	.....	Aug. 31, 1873	Fort McKavett, Tex.
Non-commissioned staff and band.	20	.....do	Do.
A	59	.....do	Do.
B	48	.....do	Fort Stockton, Tex.
C	58	.....do	Fort McKavett, Tex.
D	59	..... do	Austin, Tex.
E	59	.....do	Fort McKavett, Tex.
F	56	.....do	Do.
G	55	.....do	Fort Clark, Tex.
H	55	.....do	Do.
I	58	.....do	Fort McKavett, Tex.
K	58	.....do	Fort Clark, Tex.
	45	.....	61 recruits left Newport Barracks July 29, 1873; 16 joined
Total	630		

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Statement showing the organization and strength of enlisted men in the Army, &c.—Continued.

ELEVENTH REGIMENT OF INFANTRY.

Companies, &c.	Enlisted men present and absent.	Date of report.	Station.
Headquarters	.....	Aug. 31, 1873	Fort Richardson, Tex.
Non-commissioned staff and band.	19	.....do.....	Do.
A	40	.....do.....	Fort Griffin, Tex.
B	55	.....do.....	Fort Richardson, Tex.
C	53	.....do.....	Do.
D	49	.....do.....	Do.
E	48	.....do.....	Fort Concho, Tex.
F	50	.....do.....	Fort Griffin, Tex.
G	49	.....do.....	Do.
H	39	.....do.....	Fort Concho, Tex.
I	52	.....do.....	Fort Richardson, Tex.
K	48	.....do.....	Do.
Total	502		

TWELTH REGIMENT OF INFANTRY.

Headquarters	.....	Aug. 31, 1873	Angel Island, Cal.
Non-commissioned staff and band.	21	.....do.....	Do.
A	55	.....do.....	Camp Wright, Cal.
B	41	.....do.....	San Diego, Cal.
C	55	.....do.....	Fort Hall, Ind. T.
D	46	.....do.....	Camp Independence, Cal.
E	42	.....do.....	Camp Gaston, Cal.
F	55	.....do.....	Camp Beale's Springs, Ariz.
G	74	.....do.....	Angel Island, Cal.
H	40	.....do.....	Camp Halleck, Nev.
I	55	.....do.....	Camp Mohave, Ariz.
K	55	.....do.....	Camp Gaston, Cal.
	11	.....	143 recruits left Fort Columbus May 4, 1873; 132 joined.
	1	.....	Recruit left San Francisco July, 1873.
Total	551		

THIRTEENTH REGIMENT OF INFANTRY.

Headquarters	.....	Aug. 31, 1873	Fort Fred Steele, Wyo.
Non-commissioned staff and band.	23	.....do.....	Do.
A	55	.....do.....	Camp Brown, Wyo.
B	31	.....do.....	Fort Fred Steele, Wyo.
C	44	.....do.....	Camp Douglas, Utah.
D	37	.....do.....	Do.
E	44	.....do.....	Do.
F	37	.....do.....	Do.
G	41	.....do.....	Fort Fred Steele, Wyo.
H	40	.....do.....	Camp Douglas, Utah.
I	50	.....do.....	Do.
K	45	.....do.....	Fort Fred Steele, Wyo.
	151	.....	Recruits left Fort Columbus September 29, 1873.
Total	598		

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Statement showing the organization and strength of enlisted men in the Army, &c.—Continued.

FOURTEENTH REGIMENT OF INFANTRY.

Companies, &c.	Enlisted men present and absent.	Date of report.	Station.
Headquarters	.....	Sept. 30, 1873	Fort Laramie, Wyo.
Non-commissioned staff and band.	20	....do....	Do.
A	49	....do....	Do.
B	41	....do....	Do.
C	43	....do....	Do.
D	36	....do....	Fort Fetterman, Wyo.
E	44	....do....	Fort Sanders, Wyo.
F	47	....do....	Do.
G	52	....do....	Fort Fetterman, Wyo.
H	51	....do....	Fort Laramie, Wyo.
I	46	....do....	Sidney Barracks, Nebr.
K	40	....do....	Fort Laramie, Wash.
	3	.....	Musicians left Newport Barracks September 22, 1873.
	128	.....	Recruits left Newport Barracks October 22, 1873.
Total	600		

FIFTEENTH REGIMENT OF INFANTRY.

Headquarters	.....	Aug. 31, 1873	Santa Fé, N. Mex.
Non-commissioned staff and band.	14	....do....	Do.
A	49	....do....	Fort Wingate, N. Mex.
B	45	....do....	Fort Tulerosa, N. Mex.
C	40	....do....	Fort Union, N. Mex.
D	43	....do....	Fort Garland, Colo.
E	55	....do....	Fort Bayard, N. Mex.
F	52	....do....	Fort Selden, N. Mex.
G	55	....do....	Fort Bayard, N. Mex.
H	48	....do....	Fort Craig, N. Mex.
I	55	....do....	Fort Stanton, N. Mex.
K	46	....do....	Fort Tulerosa, N. Mex.
			100 recruits ordered October 29, 1873.
Total	502		

SIXTEENTH REGIMENT OF INFANTRY.

Headquarters	.....	Aug. 31, 1873	Nashville, Tenn.
Non-commissioned staff and band.	21	....do....	Do.
A	57	....do....	Lebanon, Ky.
B	53	....do....	Jackson, Miss.
C	58	....do....	Little Rock, Ark.
D	51	....do....	Humboldt, Tenn.
E	43	....do....	Lancaster, Ky.
F	51	....do....	Nashville, Tenn.
G	50	....do....	Do.
H	43	....do....	Jackson, Miss.
I	49	....do....	Do.
K	55	....do....	Frankfort, Ky.
Total	531		

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Statement showing the organization and strength of enlisted men in the Army, &c.—Continued.

SEVENTEENTH REGIMENT OF INFANTRY.

Companies, &c.	Enlisted men present and absent.	Date of report.	Station.
Headquarters	.....	Aug. 31, 1873	Fort Abercrombie, Dak.
Non-commissioned staff and band.	20	....do....	Do.
A	55	....do....	Do.
B	50	....do....	Fort Wadsworth, Dak.
C	49	....do....	Do.
D	48	....do....	Camp Hancock, Edwinton, Dak.
E	51	....do....	Grand River Agency, Dak.
F	50	....do....	Fort Abercrombie, Dak.
G	54	....do....	Grand River Agency, Dak.
H	51	....do....	Fort A. Lincoln, Dak.
I	53	....do....	Big Cheyenne Agency, Dak.
K	45	....do....	Do.
			80 recruits ordered October 29, 1873.
Total	526		

EIGHTEENTH REGIMENT OF INFANTRY.

Headquarters	.....	Aug. 31, 1873	Columbia, S. C.
Non-commissioned staff and band.	27	....do....	Do.
A	49	....do....	Atlanta, Ga.
B	51	....do....	Columbia, S. C.
C	45	....do....	Yorkville, S. C.
D	48	....do....	Columbia, S. C.
E	52	....do....	Atlanta, Ga.
F	42	....do....	Columbia, S. C.
G	45	....do....	Do.
H	52	....do....	Do.
I	54	....do....	Do.
K	51	....do....	Newberry, S. C.
Total	516		

NINETEENTH REGIMENT OF INFANTRY.

Headquarters	.....	Aug. 31, 1873	Jackson Barracks, La.
Non-commissioned staff and band.	19	....do....	Do.
A	53	....do....	Baton Rouge, La.
B	50	....do....	Jackson Barracks, La.
C	44	....do....	Alexandria, La.
D	47	....do....	Do.
E	41	....do....	Saint Martinsville, La.
F	47	....do....	Jackson Barracks, La.
G	44	....do....	Greenwood, La.
H	49	....do....	Jackson Barracks, La.
I	41	....do....	Greenwood, La.
K	41	....do....	Baton Rouge, La.
Total	476		

TWENTIETH REGIMENT OF INFANTRY.

Headquarters	.....	Aug. 31, 1873	Fort Snelling, Minn.
Non-commissioned staff and band.	25	....do....	Do.
A	51	....do....	Fort Seward, Dak.
B	54	....do....	Fort Ripley, Minn.
C	58	....do....	Fort Snelling, Minn.
D	52	....do....	Fort Pembina, Dak.
E	51	....do....	Fort Totten, Dak.
F	54	....do....	Fort Pembina, Dak.
G	52	....do....	Fort Ripley, Minn.
H	52	....do....	Fort Snelling, Minn.
I	52	....do....	Fort Pembina, Dak.
K	55	....do....	Fort Totten, Dak.
	3	.....	Unassigned recruits.
Total	559		

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Statement showing the organization and strength of enlisted men in the Army, &c.—Continued.

TWENTY-FIRST REGIMENT OF INFANTRY.

Companies, &c.	Enlisted men present and absent.	Date of report.	Station.
Headquarters	.....	Aug. 31, 1873	Fort Vancouver, Wash.
Non-commissioned staff and band.	20	....do	Do.
A	54	....do	Camp Harney, Oreg.
B	54	....do	Fort Walla-Walla, Wash.
C	57	....do	Fort Vancouver, Wash.
D	53	....do	Camp Warner, Oreg.
E	57	....do	Fort Colville, Wash.
F	55	....do	Fort Klamath, Oreg.
G	59	....do	Fort Lapwai, Idaho.
H	36	....do	San Juan Island, Wash.
I	54	....do	Fort Walla-Walla, Wash.
K	45	....do	Fort Boise, Idaho.
	3	.....	Recruits left San Francisco July, 1873.
Total	547		

TWENTY-SECOND REGIMENT OF INFANTRY.

Headquarters	.....	Aug. 31, 1873	Fort Sully, Dak.
Non-commissioned staff and band.	23	....do	Do.
A	55	....do	Do.
B	57	....do	Fort Randall, Dak.
C	45	....do	Lower Brule Agency, Dak.
D	47	....do	Fort Randall, Dak.
E	56	....do	Fort Sully, Dak.
F	48	....do	Do.
G	53	....do	Fort Randall, Dak.
H	47	....do	Do.
I	59	....do	Fort Sully, Dak.
K	52	....do	Fort Randall, Dak.
	2	.....	Unassigned recruits.
			65 recruits ordered October 29, 1873.
Total	544		

TWENTY-THIRD REGIMENT OF INFANTRY.

Headquarters	.....	Aug. 31, 1873	Fort Whipple, Ariz.
Non-commissioned staff and band.	18	....do	Do.
A	59	....do	Camp Verde, Ariz.
B	57	....do	Fort Whipple, Ariz.
C	59	....do	Camp McDowell, Ariz.
D	42	....do	Camp Lowell, Ariz.
E	55	....do	Do.
F	58	....do	Port Bowie, Ariz.
G	59	....do	Fort Yuma, Cal.
H	53	....do	Camp Grant, Ariz.
I	59	....do	Camp Apache, Ariz.
K	56	....do	Fort Whipple, Ariz.
Total	575		

TWENTY-FOURTH REGIMENT OF INFANTRY.

Headquarters	.....	Aug. 31, 1873	Fort Duncan, Tex.
Non-commissioned staff and band.	20	....do	Do.
A	59	....do	Ringgold Barracks, Tex.
B	59	....do	Do.
C	55	....do	Fort Brown, Tex.
D	57	....do	Fort Duncan, Tex.
E	56	....do	Fort Brown, Tex.
F	58	....do	Fort McIntosh, Tex.
G	58	....do	Fort Brown, Tex.
H	59	....do	Do.
I	54	....do	Do.
K	61	....do	Ringgold Barracks, Tex.
Total	596		

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Statement showing the organization and strength of enlisted men in the Army, &c.—Continued.

TWENTY-FIFTH REGIMENT OF INFANTRY.

Companies, &c.	Enlisted men present and absent.	Date of report.	Station.
Headquarters	.....	Aug. 31, 1873	Fort Davis, Tex.
Non-commissioned staff and band.	21	.....do	Do.
A	54	.....do	Fort Clark, Tex.
B	58	.....do	Fort Quitman, Tex.
C	57	.....do	Fort Sill, Ind. T.
D	59	.....do	Fort Davis, Tex.
E	58	.....do	Do.
F	59	.....do	Fort Stockton, Tex.
G	59	.....do	Fort Davis, Tex.
H	57	.....do	Fort Bliss, Tex.
I	57	.....do	Fort Sill, Ind. T.
K	56	.....do	Fort Stockton, Tex.
Total	595		

ENGINEER BATTALION.

Headquarters	....	Aug. 31, 1873	Willet's Point, New York Harbor.
Non-commissioned staff and band.	14	.....do	Do.
A	75	.....do	Do.
B	74	.....do	Do.
C	71	.....do	Do.
D	20	.....do	Do.
E	62	.....do	West Point, N. Y.
Total	316		

Recruits, recruiting parties, general-service men, &c.	Enlisted men.	Date of report.
Available recruits at Ft. Columbus, New York Harbor, general service and colored	215	Oct. 31, 1873
Available recruits at Newport Barracks, Ky., general service and colored	100	Oct. 31, 1873
Available recruits at Saint Louis Barracks, Mo., mounted service	129	Oct. 20, 1873
Available recruits at New York City, mounted service	44	Oct. 31, 1873
Total	488	.....
Permanent and recruiting parties, music boys, and recruits at depots not available for assignment	963	Oct. 20, 1873
General-service men on duty in Bureaus of the War Department, Army, division, and department headquarters, &c.	477	Aug. 31, 1873
Ordnance Department	425	Aug. 31, 1873
West Point detachments	215	Aug. 31, 1873
Signal detachment	432	Aug. 31, 1873
Hospital stewards	391	Oct. 31, 1873
Ordnance sergeants	111	Oct. 31, 1873
Commissary sergeants	152	Oct. 31, 1873

NOTE.—The authorized strength (enlisted men) of the following-named organizations is as follows:

Engineer Battalion	350	Artillery regiment	748	Cavalry regiment	1,001
Infantry regiment	595	Company of artillery	59	Cavalry company	83
Infantry company	59	Battery of artillery	94		

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Statement showing the organization and strength of enlisted men in the Army, &c.—Continued.

RECAPITULATION.

Regiment.	Number of men.	Regiment.	Number of men.
First Cavalry*	864	Seventeenth Infantry ¶	596
Second Cavalry	885	Eighteenth Infantry	516
Third Cavalry	921	Nineteenth Infantry	476
Fourth Cavalry	873	Twentieth Infantry	559
Fifth Cavalry	995	Twenty-first Infantry	547
Sixth Cavalry	876	Twenty-second Infantry **	544
Seventh Cavalry	1,040	Twenty-third Infantry	575
Eighth Cavalry †	784	Twenty-fourth Infantry	596
Ninth Cavalry ‡	701	Twenty-fifth Infantry	595
Tenth Cavalry	808		
First Artillery §	619		25,535
Second Artillery	722	Non-combatants:	
Third Artillery	593	Engineer Battalion	316
Fourth Artillery	663	Permanent and recruiting parties, music boys, and recruits not available for assignment.	963
Fifth Artillery	609		
First Infantry	422	General-service men on duty in the Bureaus of the War Department, Army, division, and department headquarters, &c.	477
Second Infantry	487		
Third Infantry	481		
Fourth Infantry	614		
Fifth Infantry	544		
Sixth Infantry	583	Ordnance Department	425
Seventh Infantry	589	West Point detachments	215
Eighth Infantry	507	Signal detachment	432
Ninth Infantry	507	Hospital stewards ††	391
Tenth Infantry	630	Ordnance sergeants	111
Eleventh Infantry	502	Available recruits at depots	488
Twelfth Infantry	551	Commissary sergeants	152
Thirteenth Infantry	598		
Fourteenth Infantry	600	Total non-combatants	3,970
Fifteenth Infantry ‖	502		
Sixteenth Infantry	531	Total	29,505

* Two hundred recruits ordered October 21, 1873; 100 recruits left October —, 1873.
† Two hundred and twenty recruits ordered October 29, 1873.
‡ All disposable recruits ordered September 16, 1873.
§ Thirty recruits ordered to Battery K October 7, 1873.
‖ One hundred recruits ordered October 29, 1873.
¶ Eighty recruits ordered October 29, 1873.
** Sixty-five recruits ordered October 29, 1873.
†† Not included in the 30,000 authorized by law.

REPORT OF LIEUT. GEN. SHERIDAN.

HEADQUARTERS MILITARY DIVISION OF THE MISSOURI,
Chicago, October 27, 1873.

COLONEL: For the information of the General of the Army, I have the honor to submit my annual report of operations within this military division during the past year, accompanied by the reports of subordinate commanders.

The organization of the division remains unchanged since my last report, and consists of four departments, viz: The Department of Dakota, commanded by Brig. Gen. Alfred H. Terry, consisting of the State of Minnesota and the Territories of Dakota and Montana; the Department of the Platte, commanded by Brig. Gen. Edward O. C. Ord, composed of the States of Iowa and Nebraska and the Territories of Utah and Wyoming; the Department of the Missouri, commanded by Brig. Gen. John Pope, including the States of Missouri, Kansas, and Illinois, and the Territories of Colorado and New Mexico; and the Department of Texas, commanded by Brig. Gen. Christopher C. Augur, embracing the State of Texas and the Indian Territory.

It will be seen that the Military Division of the Missouri includes most

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of the Western States and all the Territories east of Arizona, California, and Idaho, from British Columbia on the north to the Gulf of Mexico on the south. Within these limits, which include more than one million square miles of frontier country, are included great agricultural, pastoral, mining, and mercantile interests, and also 99 tribes of Indians, numbering about 192,000 persons, the majority of whom are wild and many of them hostile.

To give protection to the citizens of the frontier against these Indians and to guard the long line of our Mexican border against robberies by Mexican citizens and Indians living in Mexico; to explore unknown territory and furnish escorts to surveying-parties for scientific purposes and for projected railroads; to assist and guard the railways already built and other commercial lines of travel; to aid in the enforcement of the civil law in remote places; and to do generally all that is constantly required of our Army in the way of helping and urging forward everything which tends to develop and increase civilization upon the border, and at the same time to protect the Indians in the rights and immunities guaranteed them under existing treaties, has been the work of the troops in this military division for the past year, and that work has been successfully accomplished.

The effective military forces within the division—a detailed account of which will be found in the roster appended, marked A—consist of eight regiments of cavalry and seventeen regiments of infantry, aggregating 16,459 officers and enlisted men, who are distributed as follows: In the Department of Dakota, cavalry, 1,126; infantry, 3,022; in the Department of the Platte, cavalry, 1,502; infantry, 2,704; in the Department of the Missouri, cavalry, 1,558; infantry, 1,564; and in the Department of Texas, cavalry, 2,491; infantry, 2,492. This force is divided among 70 military posts, which cover the frontier from Montana on the north to the mouth of the Rio Grande on the south.

During the past year there has been only one change among the department commanders. Maj. Gen. Winfield S. Hancock was relieved from the command of the Department of Dakota on the 3d of December, 1872, by direction of the War Department, and assigned to the command of the military division of the Atlantic, and Brig. Gen. A. H. Terry was assigned to duty in his place.

Early last spring, in consequence of repeated attacks by the Indians on the post of Fort Abraham Lincoln, I deemed it necessary that a regiment of cavalry should be transferred to the Department of Dakota, in order that these Indians might be followed and punished, if they again renewed their attacks. On application to headquarters of the Army, the Seventh Cavalry was ordered from the Military Division of the South to the Department of Dakota, and, by direction of Gen. A. H. Terry, stationed at Forts Rice and Abraham Lincoln. This transfer was very fortunate, as it afterwards transpired that the authorities of the Northern Pacific Railroad desired to continue their surveys, and also that it had been determined by the Government to locate the northern boundary line, and the services of mounted troops became absolutely necessary for these purposes. As soon as the directors of the Northern Pacific Railroad had definitely settled upon their plan of operations for the summer, I deemed it necessary that some point upon the Yellowstone should be found near which to establish a depot for supplies, and by an agreement with Captain Coulson, agent of the contractor for Government transportation on the Missouri River for 1873, to furnish a steamboat to go from Fort Buford up the Yellowstone River, I sent Maj. George A. Forsyth, of my staff, to ascend that river, if possible,

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and fix upon some point near the mouth of the Powder River for this depot. This trip up the Yellowstone was successfully made as far as that point, and a convenient place found for a supply depot, in case one was required. Further explorations have also established the fact that the Yellowstone is navigable for light-draught boats for a considerable distance above the mouth of Powder River, and it is thought that boats can now be run up nearly or quite to the mouth of Big Horn River. Upon the completion of this duty, Major Forsyth returned to Fort Rice, where the expedition was being organized for the protection of the surveying parties of the Northern Pacific Railroad; and, upon his report, Brig. Gen. A. H. Terry, commanding the Department of Dakota, ordered the establishment of a depot of supplies for the Yellowstone expedition at or near Glendive Creek, where it empties into the Yellowstone, the point at which it was assumed that the surveying parties of the Northern Pacific Railroad would run their line across the river.

This expedition, under command of Col. David S. Stanley, Twenty-second Infantry, left Forts Rice and Abraham Lincoln on the 16th of June, returning to its point of departure on the 21st of September, and succeeded in accomplishing the purposes for which it was intended, for the details of which reference is made to the reports of Brig. Gen. A. H. Terry and the sub-reports of Col. D. S. Stanley and Lieut. Cols. George A. Custer and Luther P. Bradley.

The survey of the northern boundary line has been progressing satisfactorily to all concerned throughout the summer, and the troops are now en route for their winter-quarters at Fort Totten, Dak.

In the Department of the Platte, the troops were increased by the transfer of the Fourth Infantry from the Military Division of the South. In this department all of the troops have been kept actively employed in covering the advanced settlements in Nebraska, in Western Kansas along the line of the North Fork of the Republican River, in Wyoming Territory between Forts Fetterman and Laramie, and along the line of the Union Pacific Railroad. For a detailed account of the operations in this department, I respectfully refer to the accompanying reports of Brig. Gen. E. O. C. Ord and his subordinates.

Nothing of unusual interest has occurred in the Department of the Missouri. The troops have been kept actively employed in the field for the purpose of intimidating roving bands of Indians, who might be tempted to commit depredations upon settlers and interrupt lines of travel. Brig. Gen. John Pope, in his report, gives a clear and comprehensive statement of his year's work, to which reference is respectfully made.

In the Department of Texas there has been a great deal of trouble along the northern line of the State, and also along the line of the Rio Grande. The troubles on the northern frontier of Texas have been principally from Indians coming from the reservations in the Indian Territory; and I respectfully request that some definite authority be given me to punish these raiding parties of Indians upon their return to their reservations. I believe it is the only way in which the evil can be cured.

The people living along the line of the Rio Grande have been heretofore frequently plundered by raiding parties of Indians and Mexicans from Mexico. I am happy to state that these depredations have diminished very materially since the punishment administered by Col. Ranald S. Mackenzie, Fourth Cavalry, upon a raiding band of Kickapoo and Lipan Indians. For the details of Colonel Mackenzie's attack on the Lipans and Kickapoos, as well as for a very complete statement of

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military affairs in Texas, I respectfully refer to the accompanying reports of Brig. Gen. C. C. Augur.

It has been found necessary to make extensive repairs at many of the posts within this division during the year, but only one new post, the cavalry barracks near Fort Abraham Lincoln, has been erected. Considerable money has also been expended in the completion of the posts at Beaver City, Utah, and at Fort Clarke, Tex. In this connection I beg leave to call the attention of the General of the Army to the fact that, while the troops within this division will be quite comfortably quartered during the winter, they will be inconveniently crowded at some of the posts within the Departments of Dakota and of the Platte. Provision will have to be made for thorough repairs at Forts Laramie, Wyo., McPherson, Nebr., and Camp Douglas, Utah, during the ensuing summer.

The necessity of keeping Indians on their reservations is becoming more apparent every day, with the westward growth of the settlements and the rapid progress and development of the mining and cattle grazing interests in the State of Nebraska and the Territories of Wyoming and Colorado. During the last twelve months, depredations by roving bands of Indians, who, as a general thing, come from some one of the various Indian reservations within the limits of this command, have been exasperatingly frequent. They have attacked our posts, killed and wounded our citizens and carried off their cattle, and, when pursued by our troops, taken refuge within the line of their reservations and coolly boasted of their atrocities. It seems to me that a rigid rule should be made, forbidding their absence from their reservations, and in case they disregarded it, authority should be given the military to follow on the reservation, search out, capture and punish all whom it can be shown have been absent from their agencies, and off the reservations.

I respectfully recommend the erection of a large military post near the base of the Black Hills, at some good point to be selected hereafter. In this way we could secure a strong foothold in the heart of the Sioux country, and thereby exercise a controlling influence over these warlike people.

My thanks are due to Generals Pope, Terry, Ord, and Augur, who command the four Departments of this Military Division, for an intelligent administration of their commands, and for the exercise of a rigid economy in their estimates for, and expenditures of, public funds during the last fiscal year.

I am, colonel, very respectfully, your obedient servant,

P. H. SHERIDAN,
Lieutenant-General Commanding.

Col. WILLIAM D. WHIPPLE,
Asst. Adjt. Gen., U. S. A., Washington, D. C.

REPORT OF BVT. MAJ. GEN. JOHN POPE.

HEADQUARTERS DEPARTMENT OF THE MISSOURI,
Fort Leavenworth, Kans., October 6, 1873.

COLONEL: I have the honor to submit the following report of affairs in this department for the past year:

I am glad to be able to say that, with very trifling exceptions, I have no difficulties nor troubles with Indians anywhere in the department to report. The exceptions are: 1st, the murder of three surveyors, by a

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party of Cheyennes, on the Cimmarron River, in March last. The point where these murders were committed was beyond the limits of this department, but I deemed it necessary, in view of the fact that the scene of the trouble was nearer and more accessible to this place than to the headquarters department of Texas, to take immediate measures to prevent any further occurrence of that kind, and I accordingly placed two companies of the Sixth Cavalry at a point southwest of Wichita, on the Arkansas River, to scout continually the southern line of Kansas as far as the Cimmarron, and three companies of the same regiment at Fort Dodge—one company of which was directed to scout the country south and southeast from the post. Since then no trouble with Indians of any kind has occurred in that region.

2d. The usual small troubles (much more trifling in character and fewer in number) have occurred in the southern part of New Mexico with the Apaches on the reservations of Tulerosa and Fort Stanton, but by the active operations and judicious management of Major Price, Eighth Cavalry, who has general command in Southern New Mexico, and who has been continually moving about through that country with four, and at times five, companies of his regiment, difficulties and depredations have been kept within very narrow limits, and have now almost altogether ceased.

The policy in the department has been rather to prevent than try to punish Indian depredations, by adopting early in the spring, and maintaining until winter set in, such precautionary measures as seemed most efficient, and the results have been eminently satisfactory, and are plainly manifest in the undisturbed condition of the department and in the entire absence of alarm or uneasiness on the part of the frontier settlers, who have ceased entirely to feel alarmed themselves or to alarm other people. Instead of keeping the troops at the military posts, only to be sent out on receipt of news of Indian depredations, the entire cavalry force has been kept in the field since the early spring, moving about from place to place, a few miles every day, without special object in their marches, except water and grass for animals. Instead of permitting the Indians to wander about, as has been their custom, all through the summer, to commit depredations whenever the opportunity offered, the troops have themselves been kept on the march, so that the Indians could not know where they were or at what moment or when they might come in contact with them. In this manner the necessity of watching has been thrown upon the Indians and not, as hitherto, upon the troops shut up at the posts for a large part of the season, and the result has been that the Indians have been very cautious and have in the main kept very close to the region assigned them as reservations.

The greatest danger now in this department arises from what seems to me the unfortunate practice of granting permission to Indians, of whatever tribe, to leave their reservations, and on pretext of hunting or really for that purpose, to roam in considerable bands all through the frontier settlements of Kansas and Colorado. I do not consider such a practice just to the white settlers, and it is certainly unsafe both to them and to the Indians.

I dwelt at such length on this subject in my last report that I deem it unnecessary to discuss it here, more especially as I know that the division commander entertains the same opinion as I do on the subject and is as fully acquainted with the reasons.

There was at one time uneasiness about those bands of the Utes, upon whose reservations white men, miners, and prospectors had largely intruded, but no outbreak has occurred, and I presume such arrange-

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ments have now been made as will render any difficulty with those Indians unlikely.

I deem it unnecessary to enter into any consideration of the question of shelter for troops or the repair of posts now occupied by them, as such matters have been fully represented in regular correspondence concerning them.

It is proper, however, to state, as the result of actual experience, that a yearly sum ought to be appropriated to keep the military posts in repair. It is not to be supposed that such frail structures as are always built for the accommodation of the military forces of the United States doing duty on the remote frontier, (except the ordnance corps,) can be kept in repair without the expenditure of a considerable sum annually, nor does it seem the best or most efficient way of doing this to forward estimates to Washington for the smallest details of such matters. It certainly would seem better to assign a certain sum annually for repairs of all important permanent posts, so that these posts at least might be always kept in good order. The hardships and hard work which troops on the frontier must endure, and do, and which they cheerfully undergo, certainly entitles them to habitable quarters during the severe winters of this region, and whatever expenditure of money is necessary to secure this for them ought, if possible, to be made both for the sake of justice and of good policy.

I trust, therefore, that some provision will be made, however small, to assign at the beginning of every fiscal year a fixed sum, to be determined in any manner which may seem most suitable, to keep in repair all the posts in each military department in the gross or for each post separately, so that the trifling work which needs to be done nearly every day may be done when the necessity arises, and without waiting the long delay of sending to and receiving back from Washington small estimates for such purposes.

The sums thus required would be enough if furnished at the time, but are quite insufficient after a delay of two or three months.

It is my agreeable duty to bear testimony to the very efficient and judicious action of Major Price, Eighth Cavalry, in his dealings with the Indians in the southern part of New Mexico, as also of Major Alexander, Eighth Cavalry, commanding in the Ute country. Both these officers have been very active and very successful in keeping peace and in protecting the frontiers.

Lieut. Col. J. R. Brooke, Third Infantry, commanding Camp Supply, and Maj. R. I. Dodge, Third Infantry, commanding Fort Dodge, are entitled to the same justice at my hands.

The camp of the Sixth Cavalry near Fort Hays, under command of Col. James Oakes of that regiment, has also fully satisfied the objects for which cavalry was stationed in that region.

Orders will be sent in a few days to withdraw all the troops in the field to winter-quarters at the posts from which they were detached, and by November 10 it is expected that the execution of the orders will be completed.

After that date there is little, if any, fear that Indians will be found on the great plains.

We have been subjected to much inconvenience and some embarrassment by the absence of so many field officers from their regiments, and it is hoped that some of those now on detached service may be ordered to rejoin their regiments at the earliest convenient time.

Concerning the administration of the department in its various details, I refer to the reports of the chiefs of the staff departments inclosed,

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and in relation to the same matters, I ask attention to the recommendations made in my previous reports, which are again commended to the consideration of the proper authorities.

It is, perhaps, not improper for me to specify two subjects which seem to me to be worthy of attention:

1st. Concerning the recruiting service and the detail of officers for that duty. The tour of duty of officers assigned to recruiting service begins and ends on the 1st of January, the tour of such officers lasting two years. I suggest that the time of reporting for and being relieved from such duty be fixed at May 1 or July 1, instead of January 1. Officers detached for recruiting service from remote posts, far from railroads, and ordered to report January 1, in the depth of winter, find it, in many cases, impracticable or exceedingly difficult, without much suffering, to obey the order, unless, indeed, they leave their posts several months earlier than would be necessary to make the journey, and officers relieved from recruiting duty on the 1st of January, in like manner, find it, at times, absolutely impracticable in many cases to join their proper stations at that season of the year, and are therefore obliged either to ask leave of absence or delay in obeying the order, until the season is suitable to travel to remote posts. In this manner many officers are kept away from duty at their posts for several months, when, by fixing the time of joining recruiting stations, or being relieved from that duty, at May 1 or July 1, no such necessity would arise. I do not know what are the reasons for preferring the 1st of January for beginning and terminating recruiting-service details, but, unless they are very important, the interests of the service on the frontier would be greatly benefited by the suggested change.

2d. It would be greatly to the advantage of the Army on the frontier if the annual appropriations for building and repairing shelter for the troops could be made available on the 1st of February of each year instead of the 1st of July. It has not seemed practicable to distribute the sums approved on requisitions for the posts on the frontier so that they can reach such posts before the autumn, generally too late in the season to be applied to building before the following spring. By having the money assigned for such purposes early in the spring, the whole season in which building or repairing can be best done, would be available for the purpose, and the troops need not, as is now the case, suffer more or less all winter because of the impracticability of using the funds actually allowed during that season of the year. Whether this change can be made, or whether it be judicious to make it, must be left to higher authority, and I simply offer the suggestion for consideration.

I would also suggest the advisability of retransferring to this department that portion of the Indian country between the southern line of Kansas and the Canadian River, including Fort Gibson. I think the division commander agrees with me that the defensive arrangements of this department require that the department commander should have jurisdiction over that region.

The various staff departments have been conducted with efficiency and good judgment, as I think the results show.

We are rapidly acquiring thorough knowledge of all the country embraced in the limits of the department, and most excellent maps, through the various scouting parties, in each of which an officer or an engineer soldier has made careful surveys and sketches under detailed instructions from department headquarters.

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I transmit inclosed a roster of the department and a field return of the troops serving in it.

I am, colonel, respectfully, your obedient servant,

JNO. POPE,
B'v't Maj. Gen., U. S. A., Commanding.

Official:
R. WILLIAMS,
Assistant Adjutant-General.
Lieut. Col. J. B. FRY, *Asst. Adjt. Gen.*,
Headquarters Military Division of the Missouri.

NOTE.—Since the above report was written, a party of two hundred Cheyennes left their reservation south of Camp Supply, and passing far to the west of all the posts entered the southern part of Colorado west of Fort Lyon, and went up as far as the Kansas Pacific Railroad at River Bend. The Indians were not hostile, and beyond stealing some cooking utensils and killing a few cattle they did no damage. Finding that their presence excited such immediate attention from the citizens as well as the troops, they hastened back toward their reservation.

Full report of the matter having been made to the division commander so recently, it seems unnecessary to enter into details here. As the Indians belonging to this party are individually known they can be arrested and punished at any time on their reservation. They have not committed any acts demanding such condign capital punishment as (I see from the papers) the Secretary of the Interior recommends; nor have they done anything that is not done every year by some of the reservation Indians, against the perpetrators of which severe measures have been discountenanced, not to say denounced. Only in February last a party of Cheyennes, some of whom were without doubt the same Indians who were on the late expedition into Colorado, went up the Canadian River from their reservation with the same purpose, (viz, to fight the Utes,) and in returning began to depredate on the settlements near Bascom. They were attacked by troops from that post and several killed. This act, which seems to be recommended in the present case, when it is too late for execution, was the occasion of remonstrance by the Interior Department, and a manifest intention was shown to throw the blame of any further depredations by the Cheyennes upon the military who did it. If the Interior Department really wishes the Cheyennes recently in Colorado punished, they have only to consent to their arrest when they get back to their reservation. I can easily and promptly do this and save unnecessary bloodshed among innocent people.

REPORT OF MAJ. GEN. IRWIN McDOWELL.

HEADQUARTERS DIVISION OF THE SOUTH,
Louisville, Ky., October 6, 1873.

SIR: I have the honor to submit to the General of the Army the following report of the military operations and the military service in this division (reconstituted December 11, 1872, and consisting of the Departments of the South and the Gulf) for the year commencing October 1, 1872:

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DEPARTMENT OF THE SOUTH.

October 1, 1872.—The posts of Lincolnton and Rutherfordton, N. C., were discontinued, and Company C, Seventh Cavalry, was ordered from Lincolnton to Charlotte, N. C., and Company C, Fourth Artillery, was ordered from Rutherfordton to Raleigh, N. C., where it arrived October 17, 1872.

October 16, 1872.—Company H, Seventh Cavalry, was sent from Nashville, Tenn., to Livingstone, Sumter County, Ala., to protect citizens at the election, and returned November 10, 1872.

October 21, 1872.—Company E, Eighteenth Infantry, sent from Atlanta, Ga., to Seales Station, Russell County, Ala., and ordered back November 8, 1872. One commissioned officer and twenty-five men, Company A, Seventh Cavalry, were ordered from Elizabethtown, Ky., to report to United States marshal. One commissioned officer and fifteen men of Company H, Seventh Cavalry, detached from Livingstone, Sumter County, to Carrollton, Pickens County, Ala., ordered back November 10, 1872.

October 22, 1872.—Company B, Second Infantry, was sent from Atlanta, Ga., to Demopolis, Marengo County, Ala., and Company I, Second Infantry, was sent from Chattanooga, Tenn, to Eutaw, Greene County, Ala. Both returned to their posts November 10, 1872. One commissioned officer and twelve enlisted men of Company A, Eighteenth Infantry, were ordered from Atlanta, Ga., to Macon, Ga., at request of the United States marshal, and ordered back November 10, 1872.

October 29, 1872.—Company E, Third Artillery, was ordered from Fort Pulaski to Savannah, Ga., during the election.

November 1, 1872.—One officer and ten men were placed en route for each of the following places in Alabama from Chattanooga, Tenn.: Abbeville, Henry County, Second Lieut. A. McIntyre, Second Infantry. Columbia, Henry County, First Lieut. J. Ulis, Second Infantry. Ordered back November 10, 1872.

One officer and ten men placed en route for each of the following places in Alabama, from Nashville, Tenn.; Ozark, Dale County; Greenville, Butler County; Rutledge, Crenshaw County; Troy, Pike County. Ordered back November 10, 1872.

November 6, 1872.—Headquarters, and Light Battery C, Third Artillery, were placed en route for New York City, in compliance with General Orders No. 88, War Department, Adjutant-General's Office, of 1872.

November 12, 1872.—Light Battery K, First Artillery, arrived in the department from the Department of the East, in compliance with General Orders No. 88, War Department, Adjutant-General's Office, of 1872, and took post at Charleston, S. C.

November 15, 1872.—Headquarters, staff, band, and Company H, First Artillery, arrived in the department pursuant to General Orders No. 88, War Department, Adjutant-General's Office, of 1872, and took post at Charleston, S. C., relieving Company I, Third Artillery, which was placed en route for the Department of the East.

November 17, 1872.—Company D, First Artillery, arrived in the department from the Department of the East pursuant to General Orders No. 88, War Department, Adjutant-General's Office, of 1872, and took post at Savannah, Ga., relieving Company K, Third Artillery, which was placed en route for the Department of the East.

November 20, 1872.—Maj. John Hamilton and Companies B and C, First Artillery, arrived at Fort Pulaski, Georgia, from the Department

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of the East, relieving Companies E and H, Third Artillery, which were placed en route for New York City, in compliance with General Orders No. 88, War Department, Adjutant-General's Office, of 1872.

November 22, 1872.—Maj. J. C. Tidball and Companies F and I, Second Artillery, arrived at Raleigh, N. C., from the Division of the Pacific.

November 30, 1872.—Captain Weir and thirty enlisted men of Company D, Seventh Cavalry, were placed en route for Montgomery, Ala., on the request of the governor of Alabama, based on the representations of the sheriff of Montgomery County.

December 5, 1872.—Company K, Sixteenth Infantry, was relieved from duty at Saint Augustine, Fla., and ordered to Frankfort, Ky. Company I, Seventh Cavalry, was relieved from duty at Shelbyville, and ordered to Lebanon, Ky.

December 6, 1872.—Company L, Seventh Cavalry, was relieved from duty at Yorkville, S. C., and ordered to Shreveport, La., (Department of the Gulf,) and Company M, Seventh Cavalry, was relieved from duty at Unionville, S. C., and ordered to Oxford, Miss., (Department of the Gulf,) by order of the General of the Army.

December 11, 1872.—I assumed command of the Division and Department of the South, relieving Brig. Gen. A. H. Terry from command of the latter, in compliance with General Order 100, War Department, Adjutant-General's Office, of 1872.

December 16, 1872.—Company A, Sixteenth Infantry, was sent from Louisville to Frankfort, Ky., pursuant to paragraph 4th, Special Order 310, War Department, Adjutant-General's Office, of 1872; the Fourth Infantry was placed en route for Little Rock, Ark., in the following order: 16th, Company H; 18th, Company F; 19th, Company I; 21st, Company D; 23d, Company A; 24th, Company E; 25th, Company B; 26th, Company C; January 7, 1873, Company K; January 14, 1873, Company G.

December 18, 1872.—Company L, Seventh Cavalry, placed en route for Shreveport, La., in compliance with paragraph 4, Special Order 310, War Department, Adjutant-General's Office of 1872.

December 23, 1872.—Company K, Sixteenth Infantry, was sent to Frankfort, Ky., from Saint Augustine, Fla.

December 25, 1872.—Company M, Seventh Cavalry, from Unionville, S. C., placed en route for Oxford, Miss., in compliance with Special Order 310, War Department, Adjutant-General's Office, of 1872.

December 26, 1872.—Company I, Second Infantry, was ordered from Chattanooga, Tenn., to Lancaster, Ky.

December 30, 1872.—Company I, Seventh Cavalry, abandoned the post of Shelbyville, and went to Lebanon, Ky.

January 6, 1873.—One officer and twenty men of Company F, Seventh Cavalry, from Taylor Barracks, Ky., placed en route for Livingstone, Rockcastle County, Ky., to assist United States marshal in serving process of United States court.

January 17, 1873.—The post of Laurensville, S. C., ordered abandoned, and Company I, Eighteenth Infantry, ordered to Columbia, S. C., where it arrived January 26, 1873. Company G, Seventh Cavalry, ordered to Newberry, S. C., and arrived there January 23, 1873.

January 21, 1873.—The post of Chester, S. C., ordered abandoned, and Company H, Eighteenth Infantry, placed en route for Columbia, S. C. Detachment of cavalry sent to Yorkville, S. C., and arrived January 29, 1873.

January 26, 1873.—Detachment of Company A, Seventh Cavalry, ordered back to Elizabethtown, Ky., from Huntsville, Ala.

January 29, 1873.—At the request of United States Marshal Murray,

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Company A, Sixteenth Infantry, was sent to Lexington, Ky., from Frankfort, Ky., and ordered back February 7, 1873.

February 3, 1873.—Headquarters and band, Fourth Infantry, left Frankfort, Ky., for Little Rock, Ark.

February 15, 1873.—Commanding officer post of Atlanta, Ga., was directed to place one officer and twenty men en route for Moultrie, Colquitt County, Ga., at request of United States Marshal Smyth, of Georgia. They returned to Atlanta, Ga., April 16, 1873.

February 17, 1873.—Company D, Seventh Cavalry, was ordered from Opelika to Livingstone, Sumter County, Ala., by direction of the President.

March 3, 1873.—Company A, Sixteenth Infantry, was placed en route for Lebanon, Ky,

March 13, 1873.—Company D, Seventh Cavalry, arrived at Memphis, Tenn., from Livingstone, Ala.

March 15, 1873.—Company E, Seventh Cavalry, arrived at Memphis, Tenn., from Unionville, S. C.

March 17, 1873.—Company K, Seventh Cavalry, arrived at Memphis, Tenn., from Yorkville, S. C.

March 18, 1873.—Company M, Seventh Cavalry, arrived at Memphis, Tenn., from Oxford, Miss.

March 20, 1873.—Company C, Seventh Cavalry, arrived at Memphis, Tenn., from Charlotte, N. C. Company B, Seventh Cavalry, arrived at Memphis, Tenn., from Spartanburg, S. C.

April 2, 1873.—Headquarters, staff, band, and Companies A, F, H, and I, Seventh Cavalry, left Louisville, Ky., en route for Department of Dakota.

April 3, 1873.—Companies G and D, Seventh Cavalry, left Memphis, Tenn., for Department of Dakota.

April 4, 1873.—Companies E and K, Seventh Cavalry, left Memphis, Tenn., for Department of Dakota.

April 5, 1873.—Companies B, C, L, and M, Seventh Calvary, left Memphis, Tenn., for Department of Dakota.

May 20, 1873.—The post of Spartanburg, S. C., ordered abandoned, and garrison (Company D, Second Infantry) sent to Atlanta, Ga., June 2, 1873, arrived June 7, 1873.

June 11, 1873.—The post of Taylor Barracks, Louisville, Ky., abandoned, Company E, Sixteenth Infantry, placed en route for Lancaster, Ky., to relieve Company I, Second Infantry, the latter, when relieved, to proceed to Atlanta, Ga. Garrison at Nashville was temporarily removed to White Creek Springs on account of cholera.

July 10, 1873.—Charleston Arsenal, S. C., was ordered discontinued, and the arsenal (to be hereafter known as Charleston Barracks) to form part of the post of Charleston.

August 19, 1873.—The post of Sumter, S. C., ordered to be abandoned and Company F, Eighteenth Infantry, to proceed to and take station at Columbia, S. C.

September 4, 1873.—The post of Charlotte, N. C., discontinued, and Company D, Second Artillery, ordered to take post at Charleston Barracks, S. C.

September 20, 1873.—The garrison of Mobile, Ala., headquarters, staff, band, and Companies G and K, Second Infantry, temporarily moved to Mount Vernon, Ala., in consequence of yellow fever. The movements of troops in this department were made in aid of the United States civil officers, to enforce the processes of the United States courts, and collect the internal revenue. In all cases the troops fulfilled the duty on which

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they were sent. Soon after assuming command of the division I made an inspection of all the posts in this department, and in the interests of discipline, military instruction, and economy, abandoned such of them as the nature of the public service permitted, and concentrated the troops, as far as practicable, at such points as enabled them to be maintained at the least cost and greatest comfort. Fourteen of the military posts of the department were thus abandoned, at an annual saving of over $100,000 on account of the Quartermaster's Department alone. For the purpose of making a further reduction in expense, of avoiding the necessity of repairing old temporary quarters built on hired ground, and of exchanging an unhealthy for a healthy post, I made a special inspection in person in the month of August last of the late Mount Vernon Arsenal, Ala., (now directed to be called Mount Vernon Barracks,) with the view of preparing economical and judicious estimates of alterations necessary to convert, at an early day, bare workshops into quarters, and an arsenal into barracks, that I might send there the troops now at Mobile. I trust the War Department may soon be able to sanction the estimates for these alterations, and grant authority for sending in estimates for a hospital. The place (I cannot yet say the barracks) at Mount Vernon is now occupied by the garrison from Mobile, it having sought refuge there from the yellow fever now afflicting the South. The late Charleston Arsenal, hereafter to be called Charleston Barracks, is now occupied by a single company. I propose soon to inspect the post with the view of submitting estimates for such alterations as will enable me to place there two, or at least one more company, and thus further reduce the sum we are now paying for hire of quarters.

The deputy quartermaster-general attached to this department (whose report is herewith) states the United States to be indebted through the Quartermaster's Department, in the Department of the South, for the fiscal year ending June 30, 1873, as follows:

Incidental expenses	$12,529 29
Barracks and quarters	11,197 16
	23,726 45

He further states that as this amount was not for material furnished, but for personal services, it is the decision of the War Department that the creditors cannot be paid from the appropriations for this year, and must now look to Congress for relief.

The sum of $12,529.29, for what is known as "incidental expenses," is made up of small sums due to, mostly, poor people; $4,471.49 being to clerks authorized by the War Department; $683 to colored scavengers at five different posts; $1,881 to blacksmiths for shoeing the artillery, cavalry, and quartermasters' horses at eighteen different posts; $4,196 to soldiers at twenty-three posts for extra duty, pay allowed by law when on constant hard labor for more than ten days; $1,320 to persons at twelve posts for rewards, allowed by law, for apprehension of deserters.

The sum of $11,197.16 is mostly due for rent of buildings and grounds for barracks and quarters at twelve different posts—those still occupied—it having been thought best to pay in full at those which I caused to be abandoned. I am safe in saying that everything has been done to insure as little liability under these heads as possible; that, in fact, it would have been much greater but for the reduction I have made in the number of posts. I am assured, and believe, that the various post assistant and acting assistant quartermasters have been prompt in send-

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ing in their estimates, and that these have been by the deputy quartermaster-general promptly sent to the Quartermaster-General's Office.

I have no question, also, that the funds were remitted to the extent the appropriation permitted, and were distributed as soon as possible. I only dwell on this subject because of the hardship I know it has caused many deserving people, and of the discredit it has brought on the service, and to show that the indebtedness is not due to any want of vigilance or fault on my part, or of those under me.

I send herewith the reports of the chiefs of the several staff departments at department headquarters of the operations under their charge during the part year.

DEPARTMENT OF THE GULF.

I submit herewith the report of Col. W. H. Emory, commanding the department, for an account of the movement of troops and the state of the service in his command.

The duty devolving on the officers and men and their commander in this department during the past year has been of the most delicate, important, and frequently embarrassing kind, and it gives me pleasure to state that it has been discharged with tact, fidelity, and, in all cases, with effect.

I have the honor to be, very respectfully, your most obedient servant,

IRWIN McDOWELL,
Maj. Gen. Commanding Division of the South.

The ASSISTANT ADJUTANT-GENERAL,
Headquarters of the Army, Washington, D. C.

REPORT OF MAJ. GEN. J. M. SCHOFIELD.

HEADQUARTERS MILITARY DIVISION OF THE PACIFIC,
San Francisco, Cal., November 3, 1873.

SIR: I have the honor to submit to the General of the Army the inclosed reports of operations in this military division during the past year.

The Division of the Pacific embraces the three Departments of Arizona, California, and the Columbia.

The Department of Arizona, commanded by Bvt. Maj. Gen. George Crook, lieutenant-colonel Twenty-third Infantry, since appointed brigadier general, has been the theater of active operations against hostile Indians—operations characterized by consummate skill displayed in the plans of the departmental commander, and by gallantry and untiring energy of the officers and men engaged. With few exceptions the lately-hostile Apaches have been forced to submit to authority, and are now living quietly upon the reservations assigned them.

Since the close of General Crook's campaign it has been found possible to diminish somewhat the cavalry force in that department, which had been increased to insure his success.

Increased development and security have diminished the cost of supplies for the troops.

The military telegraph to Prescott and Tucson, now nearly completed, beside its great military advantages, will facilitate commercial business and promote further development of the Territory.

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The condition of Arizona is more hopeful than at any former period, and great credit is due for this improvement to the department commander and his subordinates.

I respectfully refer to General Crook's report and the accompanying documents for full and detailed information upon all matters connected with his command.

The Department of the Columbia has been the scene of a conflict more remarkable in some respects than any before known in American history. All the details of the Modoc war are so fully known to the Government and to the public, through reports heretofore made, that it would be superfluous to repeat them here.

The Department of the Columbia is now commanded by Bvt. Maj. Gen. Jefferson C. Davis, colonel Twenty-third Infantry, who succeeded to that command upon the death of the lamented General Canby.

General Davis's annual report has not yet been received at these headquarters.

The Department of California, under my immediate command, has enjoyed uninterrupted peace during the past year. Nearly all the troops, including the artillery, were engaged in the campaign against the Modocs, and some of them have since been employed in guarding the prisoners and in conducting them to their destination in the Department of the Platte.

The inclosure marked A gives the strength and distribution of the troops serving in the department.

The reports of the chiefs of staff departments, also inclosed, show the details of transactions in their separate departments.

Some changes in the stations of troops, rendered expedient by the progress of events, will hereafter be made the subject of special report, accompanied by estimates of the expenditures necessary to accomplish them.

Very respectfully, your obedient servant,

J. M. SCHOFIELD,
Major-General.

The ASSISTANT ADJUTANT-GENERAL,
Headquarters of the Army, Washington, D. C.

REPORT OF MAJ. GEN. W. S. HANCOCK.

HEADQUARTERS MILITARY DIVISION OF THE ATLANTIC,
New York City, September 30, 1873.

SIR: I have the honor to submit for the information of the General of the Army my annual report for the division.

I was assigned to that command and to that of the Department of the East by General Order No. 100, Headquarters of the Army, November 25, 1872, and pursuant to these orders assumed command December 16, 1872.

General Order No. 105, Headquarters of the Army, Adjutant-General's Office, December 7, 1872, transferred the headquarters of this division from Philadelphia, Pa., to New York City.

The organization of the division has not been changed since date of last annual report. Its aggregate in troops at date of last returns was as follows:

Department of the East, 178 officers; enlisted men, 1,531; Depart-

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ment of the Lakes, 78 officers; enlisted men, 603; total, 256 officers, 2,134 enlisted men.

I refer to my inclosed report, as commander of the Department of the East, for a detailed statement of operations in that command during the past year, and also refer for a similar purpose to inclosed annual report of the commander of the Department of the Lakes.

The attention of the General of the Army is respectfully invited to the remarks and recommendations contained in the concluding portion of my report, as commander of the Department of the East, relative to the urgent necessity for a military prison in that command, and which might serve as well for Department of the Lakes, and concerning the erection of some new buildings at certain posts in New York Harbor.

Having recently visited and inspected all the posts in the Department of the Lakes, I am able to concur in the remarks and recommendations of the commanding general of that department.

In reference to the reservation at Fort Gratiot, I may add, in addition to my approval of the views expressed in his report, that I think it unfortunate that the ground between the fort and the inlet of the straits should have been ceded by Congress, and that with all the guards that may be thrown around the deed of cession, I believe, for military purposes, the value of the reservation has been much impaired. I think, also, it would be better that the part of the light-house reservation authorized to be sold should be reserved for military purposes, as since the obstruction of the old reservation caused by the grant to the railroad company, I am not sure that it might not be as well to make that the defensive point instead of the present position.

I submit herewith a list of the military reservations in this division, showing when and how the land was secured to the Government, and how occupied at this date.

Fort Mackinac is an excellent place for the cantonment of troops intended for service on the upper lakes. It has no other importance at this date, as it cannot be made to protect the straits on which it is situated.

Plattsburg Barracks may also be used for the quartering of troops, but can serve no other military purpose not provided for by Fort Montgomery.

Carlisle is only important as a cantonment.

David's Island might advantageously be made a cantonment for the troops intended to occupy the forts in the East River, when completed.

As all of the reservations named in the accompanying list, save Fort Wilkins, Copper Harbor, Lake Superior, (now abandoned, and not important to the military service,) are deemed to be useful, it would in my judgment be better to retain all, with that exception.

I inclose herewith reports of the chiefs of the several staff corps at these headquarters.

The assistant inspector-general, having been absent for some time on a tour of inspection, has not been able to furnish his annual report. It will be transmitted to your office as soon as practicable after his return to these headquarters.

I am, sir, very respectfully, your obedient servant,

WINF'D S. HANCOCK,
Maj. Gen., U. S. A., Commanding.

The ASSISTANT ADJUTANT-GENERAL,
Headquarters of the Army, Washington, D. C.

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REPORT OF THE ADJUTANT-GENERAL.

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REPORT

OF

THE ADJUTANT-GENERAL.

Memorandum of annual returns.

1. *Table* showing the "organization of the regular Army," marked
2. General return or exhibit of the actual strength of the regular Ar
   marked B.
3. *Statement* of the "position and distribution of troops," as follow
   Military Division of the Missouri, comprehending the Departm
   of the Missouri, the Platte, Dakota, and Texas, marked C.
   Military Division of the Atlantic, comprehending the Departm
   of the East and the Lakes, marked D.
   Military Division of the Pacific, comprehending the Departm
   of California, the Columbia, and Arizona, marked E.
   Military Division of the South, comprehending the Departm
   of the South and the Gulf, marked F.

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C.—*Position and distribution of troops in the Military Division of the Missouri returns on file in t*

POSTS.	SITUATIONS.	COMMANDING OFFICERS.	GARRISONS.	
			Number of companies.	Regiments.
DEPARTMENT OF THE MISSOURI.				Division sta
Headquarters.....	Fort Leavenworth, Kans	Brig. Gen. John} Pope...	....	Department staff.
District of N. Mex .	Headquarters Santa Fé, N. Mex.	Col. J. I. Gregg, 8th Cav.	...	District staf &c.
Fort Bayard, N. Mex.	Near Pinos Altos	Maj. W. R. Price, 8th Cav.	4	8th Cav. and 15th Inf.
Fort Craig, N. Mex.	On the Rio Grande.....	Capt. J. H. Stewart, 15th Inf.	1	15th Inf....
Fork McRae, N. Mex.	35 miles south of Fort Craig.	Capt. S. B. M. Young, 8th Cav.	1	8th Cav ....
Fort Selden, N. Mex	On the Rio Grande.....	Capt. E. W. Whittemore, 15th Inf.	3	8th Cav. and 15th inf.
Fort Stanton, N. Mex.	On the Rio Boniata, 9 miles from Placita.	Capt. Chambers McKibbin, 15th Inf.	2	....do .....
Fort Tulerosa, N. Mex.	114 miles west of Fort Craig.	Capt. George Shorkley, 15th Inf.	2	15th Inf....
Fort Union, N. Mex	5 miles from the Rio Moro	Maj. A. J. Alexander, 8th Cav.	4	8th Cav. and 15th Inf.
Fort Wingate, N. Mex.	At the headquarters of the Rio Puerco.	Capt. J. P. Brown, 15th Inf.	3	....do .....
Fort Garland, Colo.	On Utah Creek, 150 miles from Kit Carson.	Capt. Horace Jewett, 15th Inf.	2	....do .....
Fort Lyon, Colo....	52 miles from Kit Carson	Maj. James Biddle, 6th Cav.	3	6th Cav. and 3d Inf.
Camp Supply Ind. T	Near junction of Wolf and Beaver Creeks.	Lieut. Col. J. R. Brooke, 3d Inf.	6	6th Cav. 3d and 5th Inf
Fort Dodge, Kans..	96 miles southwest of Hays City.	Maj. R. I. Dodge, 3d Inf,	6	....do .....
Fort Hays, Kans...	Near Hays City, on K. P. R. R.	Col. De L. Floyd Jones, 3d Inf.	2	3d Inf.....
Fort Larned, Kans.	50 miles from Hays City	Capt. Simon Snyder, 5th Inf.	1	5th Inf .....
Fort Leavenworth, Kans.	3 miles above Leavenworth City.	Capt. D. H. Brotherton, 5th Inf.	6	3d and 5th Inf.
Fort Wallace, Kans	2 miles from Wallace Station, on K. P. R. R.	Capt. L. T. Morris, 3d Inf.	2	6th Cav. and 3d Inf.
Summer Camp	Near Fort Hays, Kans..	Col. James Oakes, 6th Cav.	4	6th Cav ....
Total	.....	.....	52	.....
DEPARTMENT OF THE PLATTE.				
Headquarters.....	Omaha, Nebr.....	Brig. Gen. E. O. C. Ord..	....	Department staff.
Omaha Barracks, Nebr.	4 miles above Omaha City.	Col. J. H. King, 9th Inf .	6	2d Cav., 4th and 9th Inf
Sidney Barracks, Nebr.	Near Sidney Station, on U. P. R. R.	Lieut. Col. G. A. Woodward, 14th Inf.	2	3d Cav. and 14th Inf.
Fort McPherson, Nebr.	6 miles south of McPherson Station.	Col. J. J. Reynolds, 3d Cav.	5	3d Cav .....
Fort D. A. Russell, Wyo.	On the line of U. P. R. R.	Col. J. V. Bomford, 8th Inf.	9	3d Cav., 4th, and 8th Inf
Fort Sanders, Wyo.	.....do	Col. I. N. Palmer, 2d Cav.	4	2d and 3d Cav., and 4th Inf.
Fort Fred. Steele, Wyo.	.....do	Col. P. R. De Trobriand, 13th Inf.	4	2d Cav., 9th and 13th Inf
Fort Bridger, Wyo.	10 miles south of Carter's Station, on U. P. R. R.	Col. F. F. Flint, 4th Inf..	2	4th Inf.....

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by Lieutenant-General P. H. Sheridan, headquarters Chicago, Illinois, taken from the latest General's Office, 1873.

PRESENT.																					ABSENT.						PRESENT AND ABSENT.		
Bureau of Military Justice.	Quartermaster's Department.	Subsistence Department.	Medical Department.	Pay Department.	Corps of Engineers.	Ordnance Department.	Post-chaplains.	Military store keepers.	Colonels.	Lieutenant-colonels.	Majors.	Captains.	Regimental chaplains.	Regimental adjutants.	Regimental quartermasters.	Subalterns.	Enlisted men.	Total commissioned.	Aggregate.	General and staff officers.	Field and regt'al staff officers.	Captains.	Subalterns.	Enlisted men.	Total commissioned.	Aggregate.	Commissioned officers.	Enlisted men.	Aggregate.
3	3	1	..	1	..	..	..	..	..	..	1	..	..	..	..	..	11	13	24	..	..	..	..	..	..	..	13	11	24
1	4	2	2	4	1	..	..	1	..	..	..	..	..	..	..	..	10	17	27	..	..	..	..	..	..	..	17	10	27
	1	1	1	3	..	..	..	..	1	..	..	..	1	1	1	..	24	10	34	..	..	..	..	..	..	..	10	24	34
..	..	..	1	..	..	..	..	..	..	..	1	3	..	..	..	5	236	10	246	..	..	1	..	..	1	1	11	236	247
..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	49	2	51	..	..	..	..	2	..	2	2	51	53
..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	54	2	56	..	..	..	1	3	1	4	3	57	60
..	..	1	..	..	..	..	..	..	..	..	..	3	..	..	..	5	173	9	182	..	..	..	..	1	..	1	9	174	183
..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	3	120	5	125	..	..	..	..	1	..	1	5	121	126
..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	89	4	93	..	..	..	1	3	1	4	5	92	97
..	1	..	1	..	..	..	..	1	..	..	1	3	..	1	..	5	249	13	262	..	3	1	1	3	5	8	18	252	270
..	..	..	1	..	..	..	..	..	..	..	..	3	..	..	..	2	177	6	183	..	..	..	3	2	3	5	9	179	188
..	..	..	1	..	..	..	..	..	..	..	..	2	..	..	..	2	106	5	111	..	..	..	1	4	1	5	6	110	116
..	..	..	1	..	..	..	..	1	..	..	1	2	..	..	..	5	164	10	174	..	..	1	..	2	1	3	11	166	177
1	..	1	..	..	..	..	..	..	..	1	..	5	..	..	..	8	320	16	336	..	..	1	3	3	4	7	29	323	343
1	..	1	..	..	..	..	..	..	..	..	1	4	..	..	..	9	346	16	362	..	..	2	2	3	4	7	20	349	369
..	..	1	..	..	..	1	..	..	1	..	..	1	..	1	1	3	122	9	131	..	..	1	1	1	2	3	11	123	134
..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	1	55	3	58	..	..	..	..	..	..	..	3	55	58
..	..	1	..	..	..	..	..	..	..	..	..	4	..	1	1	12	338	19	357	..	3	2	..	5	5	10	24	343	367
..	..	..	..	..	..	1	..	..	..	..	..	2	..	..	..	3	117	6	123	..	..	..	1	..	1	1	7	117	124
..	..	..	..	..	..	..	..	..	1	..	1	3	..	1	1	6	304	13	317	..	1	1	2	15	4	19	17	319	336
1	..	3	14	7	1	..	4	1	3	1	5	42	..	5	4	74	3,053	175	3,228	..	7	10	16	48	34	81	208	3,101	3,309
1	3	2	2	4	1	1	..	..	..	..	..	..	..	..	..	..	10	16	26	..	..	..	..	..	..	..	16	10	26
..	..	1	..	..	1	..	1	..	..	2	6	..	1	1	8	361	21	382	..	..	..	2	9	2	11	23	370	393
..	..	1	..	..	..	..	..	..	1	..	2	..	..	..	4	120	8	128	..	..	..	..	3	..	3	8	123	131
..	..	..	..	..	..	..	..	..	1	..	1	4	..	1	1	7	386	15	401	..	2	1	3	15	6	21	21	401	422
..	..	1	..	..	1	..	1	..	1	..	2	8	..	1	1	14	456	29	485	..	..	1	2	10	3	13	32	466	498
..	..	1	..	..	..	..	..	..	1	1	..	4	..	1	1	7	333	16	349	..	..	..	1	11	1	12	17	344	361
..	..	1	..	..	..	..	..	..	1	..	..	3	..	1	1	7	213	14	227	..	1	1	..	2	2	4	16	215	231
..	..	1	..	..	..	..	..	..	1	..	..	1	..	..	1	4	100	8	108	..	1	1	..	..	2	2	10	100	110

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C.—*Position and distribution of troops in the*

POSTS.	SITUATIONS.	COMMANDING OFFICERS.	GARRISONS.		PRESENT.		
			Number of companies.	Regiments.	General officers.	Military secretary. Aide-de-camp. Adjutant General's Dep't.	
DEPARTMENT OF THE PLATTE—Cont'd.							
Fort Laramie, Wyo.	89 miles north of Cheyenne, on U. P. R. R.	Col. J. E. Smith, 14th Inf.	7	2d Cav. and 14th Inf.			
Fort Fetterman, Wyo.	170 miles from Cheyenne, on U. P. R. R.	Lieut. Col. Cuvier Grover, 3d Cav.	5	3d Cav. and 14th Inf.			
Camp Brown, Wyo.	138 miles from Bryan, on U. P. R. R.	1st Lieut. J. B. Guthrie, 13th Inf.	1	13th Inf			
Camp Stambaugh, Wyo.	67 miles from Point of Rocks, on U. P. R. R.	Lieut. Col. A. G. Brackett, 2d Cav.	2	2d Cav. and 13th Inf.			
Camp Douglas, Utah	3 miles east of Salt Lake City.	Lieut. Col. H. A. Morrow, 13th Inf.	7	....do			
Beaver, Utah		Lieut. Col. J. D. Wilkins, 8th Inf.	4	8th Inf			
Camp on Laramie River, Wyo.	15 miles from Fort Laramie.	Capt. G. V. Henry, 3d Cav.	1	3d Cav			
Cheyenne Depot, Wyo.	At Cheyenne	Capt. T. B. Burrowes, 9th Inf.	1	9th Inf			
Total			60			1	
DEPARTMENT OF DAKOTA.							
Headquarters	Saint Paul, Minn	Brig. Gen. A. H. Terry		Department staff.	1		
Fort Snelling, Minn.	5 miles below Saint Paul	Col. George Sykes, 20th Inf.	1	20th Inf			
Saint Paul, Minn		Col. S. D. Sturgis, 7th Cav.		H'dq'rs 7th Cav.			
Fort Ripley, Minn.	47 miles north of Sauk Rapids.	Capt. W. S. McCaskey, 20th Inf.	1	20th Inf			
Fort Abercrombie, Dak.	12 miles north of Breckenridge.	Capt. J. H. Patterson, 20th Inf.	1	....do			
Fort Wadsworth, Dak.	On Kettle Lake	Maj. J. E. Yard, 20th Inf	2	....do			
Fort Totten, Dak	On southeastern shore of Devil's Lake.	Lieut. Col. L. C. Hunt, 20th Inf.	2	....do			
Fort Pembina, Dak,	On Red River of the North.	Capt. Loyd Wheaton, 20th Inf.	1	....do			
Fort Randall, Dak	On Missouri River, 146 miles above Sioux City, Iowa.	Capt. C. A. Webb, 22d Inf.	2	22d Inf			
Fort Sully, Dak	On Missouri River, 318 miles above Sioux City, Iowa.	Capt. J. B. Irvine, 22d Inf.	2	....do			
Fort Rice, Dak	On Missouri River, 50 miles below Edwinton.	Col. T. L. Crittenden, 17th Inf.	2	17th Inf			
Fort Stevenson, Dak	On Missouri River, 125 miles above Fort Rice.	Lieut. Col. Daniel Huston, jr., 6th Inf.	2	6th Inf			
Fort Buford, Dak	On Missouri River, 300 miles above Fort Stevenson.	Col. W. B. Hazen, 6th Inf.	5	....do			
Fort Seward, Dak	At crossing of James River by N. P. R. R.	Capt. J. C. Bates, 20th Inf.	1	20th Inf			
Fort A. Lincoln, Dak	At crossing of Missouri River by N. P. R. R.	Lieut. Col. W. P. Carlin, 17th Inf.	2	6th Inf			
Camp Hancock, Dak	At Edwinton	Capt. C. E. Clark, 17th Inf.	1	17th Inf			
Fort Shaw, Mont	80 miles north of Helena	Lieut. Col. C. C. Gilbert, 7th Inf.	7	7th Inf			
Fort Ellis, Mont	3 miles from Bozeman	Maj. N. B. Sweitzer, 2d Cav.	5	2d Cav. and 7th Inf.			

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Military Division of the Missouri, &c.—Continued.

Bureau of Military Justice.	Quartermaster's Department.	Subsistence Department.	Medical Department.	Pay Department.	Corps of Engineers.	Ordnance Department.	Post-chaplains.	Military store-keepers.	Colonels.	Lieutenant-colonels.	Majors.	Captains.	Regimental chaplains.	Regimental adjutants.	Regimental quartermasters.	Subalterns.	Enlisted men.	Total commissioned.	Aggregate.	General and staff officers.	Field and regt'l staff officers.	Captains.	Subalterns.	Enlisted men.	Total commissioned.	Aggregate.	Commissioned officers.	Enlisted men.	Aggregate.
		1							1		1	7		1	1	11	385	23	408				3	6	3	9	26	391	417
										1		5				8	244	14	258				2	7	2	9	16	251	267
																2	52	2	54			1		3	1	4	3	55	58
							1			1		1				4	113	7	120			1			1	1	8	113	121
	1									1		7				11	311	21	332				2	9	2	11	23	320	343
		1								1		3				7	211	12	223			1	1	3	2	5	14	214	228
												1				1	67	2	69					3		3	2	70	72
												1				1	46	2	48				1	1	1	2	3	47	50
1	1	2	13	4	1	1	3		7	6	6	53		6	7	96	3,408	210	3,618		4	7	17	82	28	110	238	3,490	3,728
1	1	2	1	5	1				1			1					11	17	28								17	11	28
		1					1			1		1		1	1	2	86	8	94					1		1	8	87	95
										1	1				1		20	3	23		2				2	2	5	20	25
												1				2	50	3	53					2		2	3	52	55
												1				2	52	3	55					2		2	3	54	57
							1				1	2				3	122	7	129								7	122	129
										1		1				4	114	6	120			1		1	1	2	7	115	122
		1										1				1	51	3	54					1		1	3	52	55
		1										2				2	99	5	104				1	1	1	2	6	100	106
		1					1					2			1	3	124	8	132		2		1	4	3	7	11	128	139
	1		1						1			2		1	1	4	122	11	133								11	122	133
										1		1				4	138	6	144			1			1	1	7	138	145
		1							1			4		1	1	8	341	16	357	1		1	2	2	4	6	20	343	363
	1											1					55	2	57				1		1	1	3	55	58
	1									1		1				3	107	6	113			1	1	2	2	4	8	109	117
												1				2	48	3	51					1		1	3	49	52
										1		5		1	1	12	414	20	434		1	2	1	10	4	14	24	424	448
	1	1									1	5				7	285	15	300				2	9	2	11	17	294	311

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C.—*Position and distribution of troops in the*

POSTS.	SITUATIONS.	COMMANDING OFFICERS.	GARRISONS.		PRESENT.				
			Number of companies.	Regiments.	General officers.	Military secretary.	Aides-de-camp.	Adjutant-General's Dep't.	Inspectors-general.
DEPARTMENT OF DAKOTA—Cont'd.									
Fort Benton, Mont.	On Missouri River, 143 miles north of Helena.	Capt. T. S. Kirtland, 7th Inf.	1	7th Inf.					
Camp Baker, Mont	18 miles northeast of Diamond City.	Capt. H. B. Freeman, 7th Inf.	1	....do					
Lower Brulé agency, Dak.	80 miles above Fort Randall.	Capt. Joseph Bush, 22d Inf.	1	22d Inf.					
Cheyenne agency, Dak.	7 miles above Fort Sully.	Capt. Carlisle Boyd, 17th Inf.	2	17th Inf.					
Grand River agency, Dak.	90 miles above Fort Sully	Capt. Edward Collins, 17th Inf.	2	....do					
In the field	On Yellowstone expedition.	Col. D. S. Stanley, 22d Inf.	29	7th Cav., 6, 8, 9, 17, & 22d Inf.					
Do	Escort to northern boundary survey.	Maj. M. A. Reno, 7th Cav.	3	7th Cav. and 20th Inf.					
Total			76		1		3	1	
DEPARTMENT OF TEXAS.									
Headquarters	San Antonio, Tex	Brig. Gen. C. C. Augur	...	Department staff.	1		3	1	
Fort Bliss, Tex	Near Franklin, Tex	Capt. F. M. Coxe, 25th Inf.	1	25th Inf.					
Fort Clark, Tex.	On Las Moras River, 126 miles west of San Antonio.	Col. R. S. Mackenzie, 4th Cav.	14	4th Cav., 10th and 25th Inf.					
Fort Concho, Tex.	At junction of the Main and North Conchos.	Lieut. Col. Wesley Merritt, 9th Cav.	6	9th and 10th Cav. and 11th Inf.					
Fort Davis, Tex.	On the Limpia River, 466 miles northwest of San Antonio.	Maj. Z. R. Bliss, 25th Inf	4	9th Cav. and 25th Inf.					
Fort Duncan, Tex.	At Eagle Pass, on the Rio Grande.	Lieut. Col. W. R. Shafter, 24th Inf.	4	4th Cav. and 24th Inf.					
Fort Griffin, Tex.	At Maxwell's Ranch	Lieut. Col. G. P. Buell, 11th Inf.	5	10th Cav. and 11th Inf.					
Fort McIntosh, Tex.	At Loredo	Capt. C. C. Hood, 24th Inf.	1	24th Inf.					
Fort McKavett, Tex.	On San Saba River, 2 miles from its source.	Col. H. B. Clitz, 10th Inf.	7	9th Cav. and 10th Inf.					
Fort Quitman, Tex.	On the Rio Grande, 80 miles below Franklin.	Capt. Charles Bentzoni, 25th Inf.	1	25th Inf					
Fort Richardson, Tex.	At Jacksboro'	Col. W. H. Wood, 11th Inf.	7	10th Cav. and 11th Inf.					
Fort Stockton, Tex	At Comanche Springs	Capt. E. G. Bush, 10th Inf.	4	9th Cav., 10th and 25th Inf.					
Ringgold Barracks, Tex.	At Rio Grande City	Col. Edward Hatch, 9th Cav.	8	9th Cav. and 24th Inf.					
Austin, Tex		Capt. E. E. Sellers, 10th Inf.	1	10th Inf					
Fort Gibson, Ind. T.	Near junction of Neosho and Arkansas Rivers.	Lieut. Col. T. H. Neill, 6th Cav.	2	6th Cav. and 5th Inf.					
Fort Sill, Ind. T.	At junction of Medicine Bluff and Cache Creeks.	Lieut. Col. J. W. Davidson, 10th Cav.	8	10th Cav., 11th and 25th Inf.					
Fort Brown, Tex.	At Brownsville	Maj. H. C. Merriam, 24th Inf.	5	24th Inf					
Total			78		1				
Grand total Military Division of the Missouri			266		5		1	1	

ADJUTANT-GENERAL'S OFFICE,
Washington, D. C., October 10, 1873.

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Military Division of the Missouri, &c.—Continued.

	PRESENT.																				ABSENT.								PRESENT AND ABSENT.		
	Bureau of Military Justice.	Quartermaster's Department.	Subsistence Department.	Medical Department.	Pay Department.	Corps of Engineers.	Ordnance Department.	Post-chaplains.	Military store-keepers.	Colonels.	Lieutenant-colonels.	Majors.	Captains.	Regimental chaplains.	Regimental adjutants.	Regimental quartermasters.	Subalterns.	Enlisted men.	Total commissioned.	Aggregate.	General and staff officers.	Field and regt'al staff officers.	Captains.	Subalterns.	Enlisted men.	Total commissioned.	Aggregate.	Commissioned officers.	Enlisted men.	Aggregate.
			1										1				2	59	4	63								4	59	63
													1				2	52	3	55					3		3	3	55	58
													1				2	46	3	49								3	46	49
													2				4	100	6	106								6	100	106
													2				2	107	4	111								4	107	111
1		1								1	2	2	23		1		49	1,451	80	1,531			6	6	182	12	194	92	1,633	1,725
												1	3				5	192	9	201				1	3	1	4	10	195	205
1		2	10	5	1		3	1	5	6	7		64		5	6	125	4,246	251	4,497	1	5	12	16	224	34	258	285	4,470	4,755
2		1	5		1		1		1		1							10	13	23	1					1	1	14	10	24
													1				2	58	3	61					1		1	3	59	62
		1								1		3	12		1	1	15	950	34	984			2	9	11	11	22	45	961	1,006
1		1									1		5				9	341	17	358	1	1	1	1	4	4	8	21	345	366
		1										1	3		1	1	6	261	13	274		2	1	1	1	4	5	17	262	279
		1									1		2				5	266	9	275	1	2	2	2	8	7	15	16	274	290
											1		4				9	253	14	267			1	1	1	2	3	16	254	270
													1				1	59	2	61								2	59	61
		1								1	1	1	3		1	1	9	446	18	464		1	4	5	3	10	13	28	449	477
													1				1	58	2	60					1		1	2	59	61
		1								1		1	5		1		12	390	21	411		2	2	2	3	6	9	27	393	420
		1											3				5	246	9	255			1	2	1	3	4	12	247	259
		1								1		1	5	1	1	1	10	446	21	467		1	3	4	29	8	37	29	475	504
													1				2	58	3	61					2		2	3	60	63
											1		2	1			4	130	8	138					1		1	8	131	139
1		1					1				1	1	8		1	1	11	485	26	511		2		3	4	5	9	31	489	520
1		1										1	4	1			9	288	17	305			1	1	1	2	3	19	289	308
5		11	5		1	1	1	4	7	9	60	3	6	5	110	4,745	230	4,975	3	11	18	31	71	63	134	293	4,816	5,109
12		19	47	21	4	2	11	3	19	20	28	219	3	22	22	405	15,463	879	16,342	4	27	47	80	425	158	583	1,037	15,888	16,925

E. D. TOWNSEND,
Adjutant-General.

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D.—*Position and distribution of troops in the Military Division of the Atlantic, co returns on file in the .*

POSTS.	SITUATIONS.	COMMANDING OFFICERS.	GARRISONS. Number of companies.	GARRISONS. Regiments.	I General officers.
DEPARTMENT OF THE EAST.				Divis'n staff.	1
Headquarters.....	New York City, N. Y ...	Maj. Gen. W. S. Hancock.	...	Department staff.	
Fort Hamilton, N. Y.	In New York Harbor, N. Y.	Col. G. W. Getty, 3d Art.	4	3d Art	
Fort Wadsworth, N. Y.	.....do	Maj. H. G. Gibson, 3d Art.	1	....do	
Fort Wood, N. Y...	.....do	Capt. Erskine Gittings, 3d Art.	1	....do	
David's Isl'd, New York.	.....do	Maj. R. V. W. Howard, 3d Art.	2	....do	
Plattsburgh Barracks, New York.	At Plattsburgh, N. Y ...	Capt. Richard Arnold, 5th Art.	1	5th Art	
F't Trumbull, Conn	At New London, Conn..	Lieut. Col. F. T. Dent, 5th Art.	2	....do	
Fort Warren, Mass.	In Boston Harbor, Mass.	Capt. J. B. Rawles, 5th Art.	1	....do	
Fort Independence, Mass.	.....do	Maj. William Hays, 5th Art.	1	....do	
Fort Preble, Me....	On Spring Point, Cape Elizabeth, Me.	Maj. Truman Seymour, 5th Art.	1	....do	
Fort Sullivan, Me..	At Eastport, Me	Capt. E. C. Bainbridge, 5th Art.	1	....do	
Fort Adams, R. I...	In Newport Harbor, R. I.	Col. H. J. Hunt, 5th Art .	4	....do	
Fort McHenry, Md.	At Baltimore, Md.....	Lieut. Col. W. H. French, 2d Art.	3	2d Art	
Fort Foote, Md	On Potomac River, 8 miles below Washington City, D. C.	First Lieut. J. E. Eastman, 2d Art.	1	....do	
Fort Monroe, Va...	At Old Point Comfort, Va.	Col. W. F. Barry, 2d Art.	5	1st, 2d, 3d, 4th, & 5th Art.	
Total	.....	.....	28	.....	
DEPARTMENT OF THE LAKES.					
Headquarters.....	Detroit, Mich.....	Brig. Gen. P. St. George Cooke.	...	Department staff.	1
Fort Wayne, Mich.	Three miles below Detroit, Mich.	Lieut. Col. P. Lugenbeel, 1st Inf.	3	1st Inf.....	
Fort Gratiot, Mich.	On the Saint Clair River, near outlet of Lake Huron, Mich.	Capt. T. N. Tolman, 1st Inf.	1	....do	
Fort Brady, Mich..	At Sault Ste. Marie, Mich.	Capt. Kinzie Bates, 1st Inf.	2	....do	
F't Mackinac, Mich	On Michillimackinac Island, Mich.	Capt. Leslie Smith, 1st Inf.	1	....do	
Fort Porter, N. Y ..	At Buffalo, N. Y	Capt. I. D. De Russy, 1st Inf.	2	....do	
Fort Niagara, N. Y.	At Youngstown, N. Y...	First Lieut. James O'Hara, 3d Art.	1	3d Art	
Fort Ontario, N. Y.	At Oswego, N. Y.....	Capt. R. N. Scott, 3d Art.	1	....do	
Madison Barracks, N. Y.	Sackett's Harbor, N. Y..	Lieut. Col. R. B. Ayres, 3d Art.	2	3d Art. and 1st Inf.	
Total	.....	.....	13	.....	1
Grand total Military Division of the Atlantic.....			41	.....	2

ADJUTANT-GENERAL'S OFFICE, *Washington, D. C., October* 10, 1873.

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by Major-General W. S. Hancock, headquarters New York City, N. Y., taken from the latest General's Office, 1873.

PRESENT.																					ABSENT.						PRESENT AND ABSENT.		
Bureau of Military Justice.	Quartermaster's Department.	Subsistence Department.	Medical Department.	Pay Department.	Corps of Engineers.	Ordnance Department.	Post-chaplains.	Military store-keepers.	Colonels.	Lieutenant-colonels.	Majors.	Captains.	Regimental chaplains.	Regimental adjutants.	Regimental quartermasters.	Subalterns.	Enlisted men.	Total commissioned.	Aggregate.	General and staff officers.	Field and regt'al staff officers.	Captains.	Subalterns.	Enlisted men.	Total commissioned.	Aggregate.	Commissioned officers.	Enlisted men.	Aggregate.
..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	....	8	5	13	2	..	..	....	....	2	2	7	8	15
1	1	2	4	3	..	..	..	2	..	..	..	..	..	..	..	....	9	13	22	4	..	..	....	....	4	4	17	9	26
..	..	..	2	..	..	..	..	..	1	..	..	3	..	1	1	8	211	16	227	..	..	1	1	5	2	7	18	216	234
..	..	..	1	..	..	..	..	..	..	..	1	1	..	..	..	3	57	6	63	1	..	..	....	1	1	2	7	58	65
..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	3	48	5	53	..	..	..	....	1	....	1	5	49	54
..	..	..	1	..	..	..	..	..	..	..	1	2	..	..	..	3	78	7	85	..	..	..	3	1	3	4	10	79	89
..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	3	50	5	55	..	..	..	....	1	....	1	5	51	56
..	..	..	1	..	..	..	..	..	..	1	..	2	..	..	..	4	74	8	82	..	..	..	2	2	2	4	10	76	86
..	..	..	1	..	..	..	1	..	..	..	..	1	..	..	..	2	45	5	50	..	..	..	....	1	....	1	5	46	51
..	..	..	1	..	..	..	..	..	..	..	1	1	..	..	..	3	49	6	55	..	..	..	1	2	1	3	7	51	58
..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	1	34	3	37	..	..	1	2	....	3	3	6	34	40
..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	1	46	3	49	..	1	..	2	1	3	4	6	47	53
..	1	..	2	..	..	..	..	..	1	..	..	3	..	1	1	9	251	18	269	..	..	1	1	3	2	5	20	254	274
..	..	..	2	..	..	..	..	..	..	1	..	3	..	1	1	8	204	16	220	..	..	..	1	6	1	7	17	210	227
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	57	2	59	..	..	1	....	1	1	2	3	58	61
..	1	..	2	..	..	..	1	..	1	1	1	5	..	..	..	22	398	34	432	..	..	..	....	20	....	20	34	418	452
1	3	2	21	3	..	..	2	2	3	3	5	24	..	3	3	72	1,611	147	1,758	5	1	4	13	45	23	68	170	1,656	1,826
..	..	1	2	2	..	..	..	..	..	..	..	..	..	..	..	....	7	9	16	..	..	..	....	....	....	....	9	7	16
..	..	1	..	..	..	..	1	..	..	1	..	3	..	1	..	5	146	12	158	..	3	..	....	3	3	6	15	149	164
..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	2	45	4	49	..	..	..	....	....	....	....	4	45	49
..	..	1	..	..	..	..	..	..	..	..	..	2	..	..	..	3	76	6	82	..	..	..	1	....	1	1	7	76	83
..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	2	34	4	38	..	..	..	....	3	....	3	4	37	41
..	..	1	..	..	..	..	..	..	..	..	..	2	..	..	..	3	88	6	94	..	..	..	1	2	1	3	7	90	97
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	52	3	55	..	..	1	....	1	1	2	4	53	57
..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	2	34	4	38	..	..	..	1	1	1	2	5	35	40
..	..	1	..	..	..	..	..	..	..	1	..	1	..	..	..	3	73	6	79	..	..	1	1	1	2	3	8	74	82
..	2	11	9	2	..	..	1	..	..	2	..	11	..	1	..	22	555	54	609	..	3	2	4	11	9	20	63	566	629
1	6	43	31	5	..	..	3	2	3	5	5	35	..	4	3	94	2,174	206	2,380	7	4	6	17	56	34	90	240	2,230	2,470

E. D. TOWNSEND, *Adjutant-General.*

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E.—*Position and distribution of troops in the Military Division of the Pacific, c returns on file*

POSTS.	SITUATIONS.	COMMANDING OFFICERS.	GARRISONS.	
			Number of companies.	Regiments.
DEPARTMENT OF CALIFORNIA.				
Headquarters.....	San Francisco, Cal.....	Maj. Gen. J. M. Schofield	...	Division staf
				Department staff.
Alcatraz Island, Cal.	In San Francisco Harbor	Maj. C. H. Morgan, 4th Art.	2	4th Art....
Angel Island, Cal..	.....do	Maj. H. R. Mizner, 12th Inf.	...	Headq'rs 12th Inf.
Benicia Barracks, Cal.	At Benicia.....	Col. A. C. Gillem, 1st Cav.	3	1st Cav ....
Camp Bidwell, Cal.	At north end of Surprise Valley.	Capt. R. F. Bernard, 1st Cav.	1	1st Cav ....
Camp Gaston, Cal..	Near junction of Trinity and Klamath Rivers.	Lt. Col. A. D. Nelson, 12th Inf.	1	12th Inf....
Camp Independence, Cal.	In Owen's River Valley.	Capt. A. B. MacGowan, 12th Inf.	1	12th Inf....
Camp Wright, Cal..	In Round Valley.....	Capt. E. C. Woodruff, 12th Inf.	1	12th Inf....
Point San José, Cal.	In San Francisco Harbor	Capt. John Mendenhall, 4th Art.	1	4th Art....
Presidio, Cal.....	.....	Col. Horace Brooks, 4th Art.	4	4th Art....
Camp Halleck, Nev.	12 miles south of Halleck station, on Central Pacific Railroad.	Capt. M. H. Stacey, 12th Inf.	1	12th Inf....
Camp McDermit, Nev.	80 miles north of Winnemucca, on Central Pacific Railroad.	Capt. Henry Wagner, 1st Cav.	1	1st Cav ....
Fort Hall, Idaho ...	140 miles north of Corinne, Utah, on the Union Pacific Railroad.	Capt. J. L. Viven, 12th Inf.	1	12th Inf....
Total	.....	.....	17	.....
DEPARTMENT OF THE COLUMBIA.				
Headquarters.....	Portland, Oreg	Col. J. C. Davis, 23d Inf..	..	Department staff.
Camp Harney, Oreg	60 miles south of Cañon City.	Maj. Elmer Otis, 1st Cav.	1	21st Inf ....
Camp Warner, Oreg	15 miles west of Warner Lake.	1st Lt. S. P. Jocelin, 21st Inf.	1	21st Inf....
Fort Klamath, Oreg	Near Lake Klamath	Lt.-Col. Frank Wheaton, 21st Inf.	3	12th and 21st Inf.
Fort Stevens, Oreg.	Near mouth of Columbia River.	Capt. M. P. Miller, 4th Art.	1	4th Art....
Fort Colville, Wash.	Near boundary line between United States and British Columbia.	Capt. Evan Miles 21st Inf.	1	21st Inf ....
Fort Vancouver, Wash.	18 miles north of Portland Oregon.	Col. R. S. Granger, 21st Inf.	1	21st Inf....
Fort Walla-Walla, Wash.	In Walla-Walla Valley..	Maj. John Green, 1st Cav	8	1st Cav. and 21st Inf.
San Juan Island, Wash.	.....	1st Lt. J. A. Haughey, 21st Inf.	1	21st Inf....
Cape Disappointment, Wash.	At the mouth of the Columbia River.	Capt. F. G. Smith, 4th Art.	1	4th Art....
Fort Boisé, Idaho ..	Near Boisé City.....	Capt. G. M. Downey, 21st Inf.	1	21st Inf....
Fort Lapwai, Idaho.	12 miles from Lewiston..	Capt. G. B. Sanford, 1st Cav.	2	1st Cav. and 21st Inf.
Sitka, Alaska	.....	Maj. Joseph Stewart, 4th Art.	2	4th Art....
Total	.....	.....	23	.....

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Major-General J. M. Schofield, headquarters San Francisco, California, taken from the latest tant-General's Office, 1873.

PRESENT.																						ABSENT.						PRESENT AND ABSENT.		
Bureau of Military Justice.	Quartermaster's Department.	Subsistence Department.	Medical Department.	Pay Department.	Corps of Engineers.	Ordnance Department.	Post-chaplains.	Military store-keepers.	Colonels.	Lieutenant-colonels.	Majors.	Captains.	Regimental chaplains.	Regimental adjutants.	Regimental quartermasters.	Subalterns.	Enlisted men.	Total commissioned.	Aggregate.	General and staff officers.	Field and regt'al staff officers.	Captains.	Subalterns.	Enlisted men.	Total commissioned.	Aggregate.	Commissioned officers.	Enlisted men.	Aggregate.
..	2	..	..	..	1	..	..	1	..	..	..	..	..	..	..	....	10	9	19	..	..	..	..	....	....	....	9	10	19
1	1	1	1	4	..	..	..	..	..	..	..	..	..	..	..	....	10	9	19	..	..	..	..	....	....	....	9	10	19
..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	2	103	5	108	..	..	..	3	2	3	5	8	105	113
..	..	..	..	..	..	..	1	..	..	..	1	..	..	1	1	....	25	4	29	..	1	..	..	....	1	1	5	25	30
..	..	1	..	..	..	..	..	..	1	1	..	2	..	1	..	5	204	11	215	..	..	1	3	4	4	8	15	208	223
..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	54	3	57	..	..	..	..	1	....	1	3	55	58
..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	55	2	57	..	..	1	1	2	2	4	4	57	61
..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	....	44	2	46	..	..	..	2	3	2	5	4	47	51
..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	54	3	57	..	..	..	..	1	....	1	3	55	58
..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	1	53	3	56	..	..	..	1	3	1	4	4	56	60
..	..	1	..	..	..	..	1	..	1	..	..	3	..	1	1	6	218	14	232	..	1	..	1	6	2	8	16	224	240
..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	2	36	4	40	..	..	..	..	4	....	4	4	40	44
..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	62	2	64	..	..	..	1	2	1	3	3	64	67
..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	56	2	58	..	..	..	..	1	....	1	2	57	59
1	1	1	5	4	..	..	3	..	2	2	2	14	..	3	2	23	974	64	1,038	..	2	2	12	29	16	45	80	1,003	1,083
..	1	1	1	3	..	..	..	..	..	..	..	..	..	..	..	....	9	7	16	..	..	..	..	....	....	....	7	9	16
..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..	1	52	4	56	..	..	..	1	1	1	2	5	53	58
..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	1	50	3	53	..	..	1	1	5	2	7	5	55	60
..	..	1	..	..	..	..	..	..	..	1	..	1	..	..	..	2	172	5	177	..	..	2	2	3	4	7	9	175	184
..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	57	2	59	..	..	..	1	5	1	6	3	62	65
..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	1	59	3	62	..	..	..	..	....	....	....	3	59	62
..	..	1	..	..	..	..	1	..	1	..	1	1	..	1	1	1	80	8	88	..	..	..	1	4	1	5	9	84	93
..	..	..	..	..	..	..	..	..	..	..	1	4	..	..	..	15	411	20	431	..	..	4	1	38	5	43	25	449	474
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	37	2	39	..	..	1	....	1	1	2	3	38	41
..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	50	2	52	..	..	..	1	....	1	1	3	50	53
..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	1	45	3	48	..	..	..	1	1	1	2	4	46	50
..	..	1	..	..	..	..	..	..	..	..	..	2	..	..	..	2	113	5	118	..	..	..	1	4	1	5	6	117	123
..	..	1	..	..	..	..	..	..	..	..	1	2	..	..	..	2	90	6	96	..	..	..	2	4	2	6	8	94	102
1	1	7	8	..	..	..	4	..	1	1	4	15	..	1	1	30	1,225	70	1,295	..	..	8	12	66	20	86	90	1,291	1,381

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E.—*Position and distribution of troo*

POSTS.	SITUATIONS.	COMMANDING OFFICERS.	GARRISONS.		Pl
			Number of companies.	Regiments.	General officers.
DEPARTMENT OF ARIZONA.					
Headquarters.....	Prescott, Ariz.....	Lt.-Col. George Crook, 23d Inf.	...	Department staff.	..
Camp Apache, Ariz.	In White Mountain country.	Capt. G. M. Randall, 23d Inf.	3	5th Cav. and 23d Inf.	..
Camp Beale's Springs, Ariz.	43 miles east of Camp Mojave.	Capt. Thomas Byrne, 12th Inf.	1	12th Inf.....	..
Camp Bowie, Ariz..	At Apache Pass	Capt. S. S. Sumner, 5th Cav.	2	5th Cav. and 23d Inf.	..
Camp Grant, Ariz..	At the foot of Mount Graham.	Maj. W. B. Royall, 5th Cav.	5	5th Cav. and 23d Inf.	..
Camp Lowell, Ariz	Near Tucson, Ariz.....	Lt.-Col. E. A. Carr, 5th Cav.	3	5th Cav. and 23d Inf.	..
Camp McDowell, Ariz.	52 miles north of Maricopa Wells.	Capt. G. F. Price, 5th Cav	2	5th Cav. and 23d Inf.	..
Camp Mojave, Ariz.	Near the head of Mojave Valley.	Capt. E. F. Thompson, 12th Inf.	1	12th Inf.....	..
Camp Verde, Ariz..	38 miles from Prescott..	Capt. J. W. Mason, 5th Cav.	3	5th Cav. and 23d Inf.	.
Fort Whipple, Ariz.	Near Prescott	Capt. James Burns, 5th Cav.	3	5th Cav. and 23d Inf.	.
Fort Yuma, Cal....	At junction of the Gila and Colorado Rivers.	Capt. Charles Wheaton, 23d Inf.	1	23d Inf.....	.
New San Diego, Cal.	.....	Capt. W. E. Dove, 12th Inf.	1	12th Inf.....	.
Total	.....	.....	25	.....	.
Grand total Military Division of the Pacific			65	.....	

ADJUTANT-GENERAL'S OFFICE,
Washington, D. C., October 10, 1873.

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Military Division of the Pacific, &c.—Continued.

PRESENT.																				ABSENT.							PRESENT AND ABSENT.		
Bureau of Military Justice.	Quartermaster's Department.	Subsistence Department.	Medical Department.	Pay Department.	Corps of Engineers.	Ordnance Department.	Post-chaplains.	Military store-keepers.	Colonels.	Lieutenant-colonels.	Majors.	Captains.	Regimental chaplains.	Regimental adjutants.	Regimental quartermasters.	Subalterns.	Enlisted men.	Total commissioned.	Aggregate.	General and staff officers.	Field and regt'al staff officers.	Captains.	Subalterns.	Enlisted men.	Total commissioned.	Aggregate.	Commissioned officers.	Enlisted men.	Aggregate.
	1	1	1	4						1							10	8	18								8	10	18
		1										2				4	239	7	246				2	6	2	8	9	245	254
												1				1	53	2	55				1	2	1	3	3	55	58
												2					130	2	132				3	3	3	6	5	133	138
											1	3				5	306	9	315			2	3	10	5	15	14	316	330
	1		1							1		2		1		3	196	9	205		3	1	3	4	7	11	16	200	216
												1				2	131	3	134			1	1	3	2	5	5	134	139
												1				1	57	2	59				1		1	1	3	57	60
												3				2	213	5	218				2	5	2	7	7	218	225
												1				4	183	5	188	1		2		7	3	10	8	190	198
		1										1				1	60	3	63				1		1	1	4	60	64
												1					40	1	41				1	2	1	3	2	42	44
	2	1	4	4						2	1	18		1		23	1,618	56	1,674	1	3	6	18	42	28	70	84	1,660	1,744
1	6	5	16	11	1		7	1	3	5	7	47		5	3	76	3,827	199	4,026	1	5	16	42	137	64	201	263	3,964	4,227

E. D. TOWNSEND, *Adjutant-General.*

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F.—*Position and distribution of troops in the Military Division of the South, comm*
on file in the .

POSTS.	SITUATIONS.	COMMANDING OFFICERS.	GARRISONS.	
			Number of companies.	Regiments.
DEPARTMENT OF THE SOUTH.				Division staff.
Headquarters.....	At Louisville, Ky.....	Maj. Gen. I. McDowell ..	....	Department staff.
Frankfort, Ky	.....	Capt. C. R. Layton, 16th Inf.	1	16th Inf....
Lebanon, Ky.....	.....	Capt. C. E. Morse, 16th Inf.	1	16th Inf.....
Lancaster, Ky	.....	Capt. J. S. Fletcher, 16th Inf.	1	16th Inf.....
Nashville, Tenn....	.....	Lieut. Col. Jas. Van Voast, 16th Inf.	2	16th Inf.....
Humboldt, Tenn ...	.....	Capt. H. A. Thoaker, 16th Inf.	1	16th Inf.....
Chattanooga, Tenn.	.....	Capt. H. C. Cook, 2d Inf. .	1	2d Inf.....
Mobile, Ala	.....	Lieut. Col. T. C. English, 2d Inf.	2	2d Inf.....
Huntsville, Ala	.....	Capt. W. F. Drum, 2d Inf.	1	2d Inf.....
Saint Augustine, Fla.	.....	Capt. M. A. Cochrane, 2d Inf.	2	2d Inf.....
Fort Pulaski, Ga...	At mouth of Savannah River.	Capt. R. T. Frank, 1st Art.	2	1st Art .....
Savannah, Ga	.....	Capt. H. W. Closson, 1st Art.	1	1st Art .....
Atlanta, Ga.....	.....	Maj. W. H. Brown, 18th Inf.	6	2d & 18th Inf.
Fort Macon, N. C...	In Beaufort Harbor.....	Maj. H. A. Allen, 2d Art.	2	2d Art .....
Fort Johnston, N. C.	At Smithville.....	Capt. A. C. M. Pennington, 2d Art.	1	2d Art .....
Raleigh, N. C.....	.....	Maj. J. C. Tidball, 2d Art.	3	2d Art .....
Charleston, S. C....	.....	Col. Israel Vodges, 1st Art.	3	1st & 2d Art
Columbia, S. C	.....	Lieut. Col. H. M. Black, 18th Inf.	6	18th Inf.....
Yorkville, S. C.....	.....	Capt. John Christopher, 18th Inf.	1	18th Inf.....
Newberry, S. C.....	.....	Capt. Jas. Stewart, 18th Inf.	1	18th Inf.....
Total.....	.....	.....	38	.....
DEPARTMENT OF THE GULF.				
Headquarters.....	At New Orleans, La	Col. W. H. Emory, 5th Cav.	...	Department staff.
Jackson Barracks, La.	.....do	Col. C. H. Smith, 19th Inf.	3	19th Inf.....
Baton Rouge, La...	.....	Capt. H. E. Stansbury, 19th Inf.	2	19th Inf.....
Alexandria, La.....	.....	Capt J. H. Smith, 19th Inf.	2	19th Inf.....
Greenwood, La.....	.....	Capt. J. H. Bradford, 19th Inf.	2	19th Inf...
Saint Martinsville, La.	.....	Capt. C. W. Hotsenpiller, 19th Inf.	1	19th Inf.....
Fort Barrancas, Fla.	In Pensacola Harbor....	Maj. J. M. Brannan, 1st Art.	3	1st Art .....
Key West, Fla.....	.....	Capt. W. M. Graham, 1st Art.	2	1st Art .....
Fort Jefferson, Fla.	At the Garden Key, Tortugas.	Capt. L. L. Langdon, 1st Art.	1	1st Art .....

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Major-General Irvin McDowell, headquarters Louisville, Kentucky, taken from the latest returns General's Office, 1873.

PRESENT.																								ABSENT.						PRESENT AND ABSENT.		
Bureau of Military Justice.	Quartermaster's Department.	Subsistence Department.	Medical Department.	Pay Department.	Corps of Engineers.	Ordnance Department.	Post chaplains.	Military store-keepers.	Colonels.	Lieutenant-colonels.	Majors.	Captains.	Regimental chaplains.	Regimental adjutants.	Regimental quartermasters.	Subalterns.	Enlisted men.	Total commissioned.	Aggregate.	General and staff officers.	Field and regt'al staff officers.	Captains.	Subalterns.	Enlisted men.	Total commissioned.	Aggregate.	Commissioned officers.	Enlisted men.	Aggregate.
	1	1															6	4	10								4	6	10
1			1	4													8	6	14								6	8	14
												1				1	54	2	56				1	2	1	3	3	56	59
			1									1				1	57	3	60				1	1	1	2	4	58	62
												1				2	45	3	48								3	45	48
			1							1		2		1	1	3	120	9	129		1		1	4	2	6	11	124	135
			1									1				2	51	4	55					1		1	4	52	56
			1									1				2	39	4	43					1		1	4	40	44
			1							1		2		1	1	4	122	10	132		1			2	1	3	11	124	135
			1									1				2	51	4	55								4	51	55
			1									2				1	90	4	94				2		2	2	6	90	96
			1									1				3	100	5	105			1	2	4	3	7	8	104	112
			1									1				2	53	4	57				1	1	1	2	5	54	59
	1		1				1			1		4				9	289	17	306			2	1	5	3	8	20	294	314
										1		1				4	104	6	110			1	2		3	3	9	104	113
			1									1				2	58	4	62					3		3	4	61	65
	1		1							1		1				4	151	8	159			2	4	5	6	11	14	156	170
			1						1			2		1	1	7	183	13	196			1	3	7	4	11	17	190	207
										1		4		1		10	316	16	332	1	2	2		5	5	10	21	321	342
			1									1				2	43	4	47					4		4	4	47	51
												1				2	49	3	52					3		3	3	52	55
1	2		15	4			1		1	3	3	29		4	3	63	1,983	129	2,112	1	4	9	18	48	32	80	161	2,031	2,192
	1	1	1	2					1								8	7	15								7	8	15
			1						1			3			1	4	166	10	176		2		1	2	3	5	13	168	181
			1									1				3	97	5	102		1	1	1		3	3	8	97	105
												1				4	88	5	93			1		3	1	4	6	91	97
												2				3	80	5	85					6		6	5	86	91
												1				1	41	2	43				1		1	1	3	41	44
			1								1					3	114	5	119			3	5	4	8	12	13	118	131
				1								1				1	78	3	81			1	4	5	5	10	8	83	91
												1					57	1	58				2	1	2	3	3	58	61

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F.—*Position and distribution of troo*

POSTS.	SITUATIONS.	COMMANDING OFFICERS.	GARRISONS.		P
			Number of companies.	Regiments.	General officers.
DEPARTM'T OF THE GULF—Cont'd.					
Jackson, Miss		Maj. S. A. Wainwright, 16th Inf.	3	16th Inf	
Little Rock, Ark		Capt. T. R. Rose, 16th Inf.	1	16th Inf	
Total			20		
Grand total Military Division of the South			58		1

ADJUTANT-GENERAL'S OFFICE,
Washington, D. C., October 10, 1873.

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Military Division of the South, &c.—Continued.

PRESENT.																				ABSENT.							PRESENT AND ABSENT.		
Bureau of Military Justice.	Quartermaster's Department.	Subsistence Department.	Medical Department.	Pay Department.	Corps of Engineers.	Ordnance Department.	Post-chaplains.	Military store-keepers.	Colonels.	Lieutenant-colonels.	Majors.	Captains.	Regimental chaplains.	Regimental adjutants.	Regimental quartermasters.	Subalterns.	Enlisted men.	Total commissioned.	Aggregate.	General and staff officers.	Field and regt'al staff officers.	Captains.	Subalterns.	Enlisted men.	Total commissioned.	Aggregate.	Commissioned officers.	Enlisted men.	Aggregate.
...	...	...	...	...	...	...	...	...	...	...	1	3	...	...	...	4	136	8	144	...	...	...	....	8	...	8	8	144	152
...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	2	60	3	63	...	...	...	....	....	...	....	3	60	63
..	1	1	5	2	..	..	..	..	2	..	2	14	..	..	1	25	925	54	979	..	3	6	14	29	23	52	77	954	1,031
1	4	2	20	6	..	..	1	..	3	3	5	43	..	4	4	88	2,914	187	3,101	1	7	15	32	77	55	132	242	2,991	3,233

E. D. TOWNSEND,
Adjutant-General.

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WAR DEPARTMENT,
Adjutant-General's Office, October 7, 1873.

SIR: My report of October 7, 1872, referred to the *re-established* business of the late Bureau of Refugees, Freedmen, and Abandoned Lands, and recited the regulations for conducting it. The said regulations have proved well adapted to their object, and the results obtained are, in a high degree, satisfactory.

In addition to the disbursing offices established under War Department General Orders No. 79, of 1872, it has been found expedient to establish others: At Fort Monroe, Virginia; Forts Macon and Johnston, North Carolina; Charleston, South Carolina; and Savannah, Georgia, for the payments to claimants residing at and near to those points, thereby enabling them to receive the amounts due them, with comparatively little expense to themselves and a considerable saving to the Government.

For the thirteen offices now open, the force employed is, 13 co mmissioned officers, 30 clerks, and 10 messengers and janitors.

The officers in charge of the offices at Forts Monroe, Macon, and Johnston, Charleston, and Savannah, attend to their ordinary post and company duties in addition.

The *discovery* of claimants who, since filing their claims, have changed their places of residence, many of them to other States, has, in many instances, proved extremely difficult, but through diligent effort on the part of the disbursing officers, who have availed themselves of all practicable means to attain that end, they have succeeded in ascertaining the whereabouts of a considerable number, and in securing to them the amounts awarded in settlement of their claims.

It was also ascertained that numerous claimants were living at points remote from either of the established paying districts, and that to secure payment to them through any one of the disbursing officers would be impossible, without entailing expenses largely disproportionate to the amounts involved. A plan was therefore submitted which led to an arrangement, by the Secretary of War with the Postmaster-General, for the payment of such claimants through the postmaster at or nearest to their respective places of residence. A number have already been paid in this way, and the system is found to work favorably. As a further aid to the "discovery of the claimants," a circular letter, copy herewith, A, dated March 18, 1873, was sent to certain Senators and Representatives. Resort was also had to advertising.

Early in the month of December, 1872, it was discovered that claims borne upon the records of the late Bureau of Refugees, Freedmen, and Abandoned Lands as *paid,* were, in fact, unpaid, while others borne as *unpaid* had actually been paid. It therefore became necessary to at once subject said records to a careful examination and comparison with those of the accounting officers of the Treasury, in order that all necessary emendations might be made and the work of payment be safely proceeded with. This labor occupied about one month, during which period all payments were necessarily suspended. Until the discovery of the errors referred to, the disbursing officer stood in constant danger of making duplicate payments, or of rejecting just claims.

By the act of March 3, 1873, entitled "An act to place colored persons who enlisted in the Army on the same footing as other soldiers as to bounty and pension," a very large number of colored ex-soldiers have become entitled to bounty, of which they had hitherto been deprived by reason of their having been "slaves" April 19, 1861. Claims under said act are filing in the Office of the Second Auditor of the Treasury, and a few certificates in settlement have already been received at this

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office. When such claims come, as they undoubtedly will, to be numerously settled, the labors of this office will, of course, be proportionately enlarged.

The missing and defective records of the late Bureau have, to a limited extent, been supplied by the late Commissioner, eighteen packages, containing records of various descriptions, including books of "Letters received," "Letters sent," and "Indorsements," "Bounty registers," files of letters, claims, soldiers' discharges, &c., having been received. The bulk, however, of those indicated to the late Commissioner by letter of January 18, 1873, has not been produced.

The discontinuance, under the circular of August 8, 1872, of the *prosecution* of claims for bounties or other moneys due to colored soldiers and others, has resulted favorably to the Government by a large saving of expenses.

Correspondence has been had with the late Commissioner from time to time, relative to subjects involved in his administration of the late Bureau.

I respectfully submit, as a part of this communication, my reports dated February 20, 1873, August 4, 1873, and September 23, 1873, (now before the War Department,) which relate, respectively, to the condition of the affairs of the late Bureau, and the responsibility and accountability of the late Commissioner.

The tabular exhibits herewith, submitted by the chief disbursing officer, will indicate the financial operations during the fiscal year ending June 30, 1873, and to August 31, 1873.

Very respectfully, general, your obedient servant,

THOMAS M. VINCENT,
Assistant Adjutant-General.

The ADJUTANT-GENERAL OF THE ARMY,
Washington, D. C.

Approved and respectfully submitted to the Secretary of War.

E. D. TOWNSEND,
Adjutant-General.

(A.)

WAR DEPARTMENT, ADJUTANT-GENERAL'S OFFICE,
Washington, March 18, 1873.

[To Senators and Representatives from States wherein claimants were believed to be.]

SIR: I have the honor to inform you that all colored soldiers or sailors, or their legal representatives, who have received notice from the Treasury Department that certificates have been issued in settlement of their claims for pay, bounty, prize-money, &c., and who have not received the amounts due them, can now be paid promptly, without further expense to claimants, so soon as this Office shall have learned the post-office address.

Therefore, I respectfully request that you will inform claimants within your reach, and request them to send their names, with post-office address, and the designation of the company and regiment in which the service was rendered, to the Adjutant-General United States Army, Washington, D. C.

It should be distinctly understood that a claimant need not send his or her name, &c., unless he or she shall have been notified from the Treasury Department that a certificate in his or her favor has been issued, this Office not having to do with cases prior to that action.

Your aid in the matter, as indicated, will not only benefit the colored claimants, but prove advantageous to the public service.

Very respectfully, your obedient servant,

E. D. TOWNSEND,
Adjutant-General.

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WAR DEPARTMENT, ADJUTANT-GENERAL'S OFFICE,
CHIEF DISBURSING OFFICE, FREEDMEN'S BRANCH,
Washington, D. C., October 7, 1873.

MAJOR: I have the honor to submit herewith tabular exhibits of the financial operations of the disbursing office of the freedman's branch of the Adjutant-General's Office in the payment of pay, bounty, prize-money, and other moneys due to colored soldiers, sailors, &c., under joint resolution of March 29, 1867, for the fiscal year ending June 30, 1873, and embodying also a separate exhibit of the like operations from July 1 to August 31, 1873.

Of the amount ($100,000) appropriated by Congress to defray the expenses attending the payment of bounties, &c., for the year ending June 30, 1873, there has been expended the sum of $58,450.06, leaving an unexpended balance of $41,549.94.

Much attention has been given to the systematizing of the general work, and under the system, as now perfected, all settled claims can be paid without any delay, other than that preceding the discovery and identification of the claimants.

Very respectfully, your obedient servant,

JAMES McMILLAN,
Capt. Third Artillery, Chief Disbursing Officer.

Maj. THOMAS M. VINCENT,
Assistant Adjutant-General.

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Abstract of receipts and disbursements for the fiscal year ending June 30, 1873.

PAY, BOUNTY, ETC., DUE COLORED SOLDIERS OR THEIR HEIRS.

Date.	Amount received.	Amount disbursed.												
		James McMillan, capt. 3d Art'y, Washington, D. C.	R. S. La Motte, maj. 13th Inf'y, Nashville, Tenn.	E. F. Townsend, maj. 9th Inf'y, Vicksburgh, Miss.	A. K. Arnold, maj. 6th Cav., New Orleans, La.	A. P. Howe, maj. 4th Art'y., Louisville, Ky.	George Gibson, maj. 5th Inf'y, Memphis, Tenn.	P. T. Swaine, maj. 2d Inf'y, Saint Louis, Mo.	G. G. Huntt, maj. 1st Cav., New Orleans, La.	James Curry, lieut. 5th Art'y, Fort Monroe, Va.	E. S. Dudley, lieut. 2d Art'y, Fort Macon, N. C.	J. W. Dillenback, lieut. 1st Art'y, Savannah, Ga.	J. H. Conselman, lieut. 1st Art'y, Charleston, S. C.	T. M. Anderson, maj. 10th Inf'y, Vicksburgh, Miss.	Total.
July, 1872	$722,682 27														
August, 1872		$577 10													$577 10
September, 1872	102,169 21	300 00													300 00
October, 1872	75,734 45	2,701 70	$252 70	$2,559 70	$2,110 46	$1,247 74									8,872 30
November, 1872	3,164 20	2,855 17	188 66	1,132 73	533 18	1,391 62	$248 87								6,350 23
December, 1872		865 33			402 70	115 65	2,504 37	$389 08							4,277 13
January, 1873	87,319 62	10,106 31	394 20	3,772 89	562 40	124 11	3,504 75	232 81							18,697 47
February, 1873	29,934 66	5,430 11	1,170 63	4,032 03	4,782 14	1,021 67	8,032 87	383 96	$225 06	$399 83					25,478 30
March, 1873	20,770 30	30,514 26	3,947 34	3,711 68	7,330 89	1,971 64	5,481 58	1,054 67	955 63	656 44					55,624 13
April, 1873	27,874 72	7,427 82	12,979 77	4,950 17	11,806 85	9,821 31	8,445 20	10,530 42	13,190 11	4,354 98	$1,076 73			$4,029 52	88,612 88
May, 1873	49,008 23	2,988 81	13,520 69		15,586 01	8,505 89	9,644 82	3,328 07	17,615 05	5,461 27	2,122 25	$1,371 15	$310 30	10,769 90	91,224 21
June, 1873	27,874 99	6,746 54	15,124 57		19,570 95	14,592 01	23,153 55	12,125 19	11,205 25	4,526 10	5,336 07	1,525 68	393 06	8,446 44	122,745 41
		70,513 15	47,578 56	20,159 20	62,685 58	38,791 64	61,016 01	28,044 20	43,191 10	15,398 62	8,535 05	2,896 83	703 36	23,245 86	422,759 16
On hand July 1, 1873	120,819 21	60,302 43			170,117 91	24,626 23	113,932 87	34,367 28	57,583 30	10,845 34	14,229 19	2,764 31	9,522 74	97,630 83	716,741 64
In transit															7,031 85
	1,146,532 65	191,332 36	107,880 99	20,159 20	232,803 49	63,417 87	174,948 88	62,411 48	100,774 40	26,243 96	22,764 24	5,661 14	10,226 10	120,876 69	1,146,532 65

Supplemental abstract of receipts and disbursements for the months of July and August, 1873.

Balance July 1, 1873	723,773 49													
July, 1873	1,567 31	3,736 87			16,716 46	3,062 49	4,585 15	1,911 81	1,950 71	1,228 14	119 45	505 22		6,783 98	40,600 28
August, 1873		2,204 87	240 53		3,759 76	1,490 30	4,677 43	2,468 85	1,862 00	1,748 02	3,006 34	354 88	35 25	4,364 84	26,213 07
		5,941 74	240 53		20,476 22	4,552 79	9,262 58	4,380 66	3,812 71	2,976 16	3,125 79	860 10	35 25	11,148 82	66,813 35
In transit															196 70
On hand Sept. 1, 1873		98,659 88	61,714 22		157,825 31	22,153 07	108,309 92	30,468 94	58,121 65	9,079 28	11,358 26	2,389 42	9,487 49	88,763 31	658,330 75
	725,340 80	104,601 62	61,954 75		178,301 53	46,705 86	117,572 50	34,849 60	61,934 36	12,055 44	14,484 05	3,249 52	9,522 74	99,912 13	725,340 80

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Abstract of receipts and disbursements for the fiscal year ending June 30, 1873—Continued.

Date.	PAY, BOUNTY, PRIZE-MONEY, ETC., DUE COLORED SAILORS AND MARINES, OR THEIR HEIRS.				COMMUTATION OF RATIONS DUE COLORED SOLDIERS.			
		Amount disbursed.				Amount disbursed.		
	Amount received.	James McMillan, capt. 3d Art'y, Washington, D. C.	A. K. Arnold, maj. 6th Cav., New Orleans, La.	Total.	Amount received.	James McMillan, capt. 3d Art'y, Washington, D. C.	R. S. La Motte, maj. 13th Inf'y, Nashville, Tenn.	Total.
July, 1872	$4,159 84							
August, 1872								
September, 1872								
October, 1872								
November, 1872								
December, 1872								
January, 1873					$453 75			
February, 1873		$1 99		$1 99				
March, 1873	225 51				55 20			
April, 1873	1,706 24	30 00		30 00				
May, 1873	35 87	5 00	$60 00	65 00	112 00			
June, 1873	139 59	1,337 63		1,337 63	55 50		$34 50	$34 50
		1,374 62	60 00	1,434 62			34 50	34 50
On hand July 1, 1873		4,780 93	51 50	4,832 43		$586 75	55 25	642 00
In transit								
	6,267 05	6,155 55	111 50	6,267 05	676 50	586 75	89 75	676 50

Supplemental abstract of receipts and disbursements for the months of July and August, 1873—Continued.

Balance July 1, 1873	4,832 43				642 00			
July, 1873	120 85	2 60		2 60				
August, 1873		24 48		24 48				
		27 08		27 08				
In transit								
On hand September 1, 1873		4,874 70	$51 50	4,926 20				642 00
	4,953 28	4,901 78	51 50	4,953 28	642 00			642 00

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Abstract of receipts and disbursements for the fiscal year ending June 30, 1873—Continued.

RECAPITULATION.

On what account.	Fiscal year ending June 30, 1873.		July and August, 1873.	
	Received.	Disbursed.	Received.	Disbursed.
Pay, bounty, &c., due colored soldiers	$1,146,532 65	$422,759 16	$725,340 80	$66,813 35
Pay, bounty, &c., due colored sailors	6,267 05	1,434 69	4,953 28	27 08
Commutation of rations due colored soldiers	676 50	34 50	642 00	.....
On hand and in transit	.....	424,228 28	.....	66,840 43
	.....	729,247 92	.....	664,095 65
	1,153,476 20	1,153,476 20	730,936 08	730,936 08

* This includes the amount on hand July 1, 1873.

Remarks.—Two thousand two hundred and seventy-one claims were paid during the fiscal year ending June 30, 1873, and 335 during July and August, 1873, making a total of 2,607. The amounts in the hands of the local disbursing officers, aggregating $559,973.32, represent 3,277 settled claims that have been adjusted at the chief disbursing office in this city for payment to the claimants, and sent to the local officers for that purpose. The payment of these claims involves no labor further than that of identifying the claimants when they shall present themselves.

I hereby certify that the above is correct.

JAS. McMILLAN,
Capt. Third Artillery, Chief Disbursing Officer.

CHIEF DISBURSING OFFICE,
Freedmen's Branch, Adjutant-General's Office, Washington, D. C., October 7, 1873.

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Report of the recruiting service from October 1, 1872, *to October* 1, 1873.

WAR DEPARTMENT, ADJUTANT-GENERAL'S OFFICE,
Washington, October 14, 1873.

Recruiting for cavalry, artillery, and infantry has been carried on during the past year in the principal northern and western, and in a few of the southern cities. Owing, however, to the limited sums appropriated for this service for the last fiscal year, several rendezvous which might have been maintained in small towns as branches to those located in the large cities have been discontinued. On the same account it was found necessary to diminish the number of enlistments by raising the standard of height for artillery and infantry recruits, in order to keep down the expenses of the recruiting service. From this cause the regiments became reduced in number at the very season for active operations, and the Department had not the means to strengthen them.

The appropriation for the present year, reduced upon the original estimate made by this Office, will towards the close of the year again run short. Meantime, however, every effort will be made to fill the regiments to the standard allowed.

Two rendezvous for organizations on the Pacific coast are maintained under the supervision of the commanding general, Military Division of the Pacific, but the number of men there enlisted is insufficient to keep up the strength of the organizations in that section of the country.

There is a rendezvous for the Corps of Engineers in New York City, under charge of an officer of that corps.

With the exception of those stationed on the Pacific coast, and those recruiting for the Battalion of Engineers, all recruiting officers enlist for the colored regiments.

A few officers located in cities where there are stations for the signal-service also enlist men for that arm of the service.

E. D. TOWNSEND,
Adjutant-General.

Statement showing the number of enlistments and re-enlistments in the Regular Army from October 1, 1872, *to October* 1, 1873; *compiled from reprots forwarded to this Office by superintendents of the recruiting service, &c.*

Regiments, &c.	Number enlisted and re-enlisted.	Regiments, &c.	Number enlisted and re-enlisted.	Regiments, &c.	Number enlisted and re-enlisted.
General service	4,131	Ninth Cavalry	41	Eleventh Infantry	34
Mounted service	3,419	Tenth Cavalry	131	Twelfth Infantry	10
Engineer Battalion	177	First Artillery	69	Thirteenth Infantry	9
Ordnance Department	105	Second Artillery	88	Fourteenth Infantry	8
Military Academy	37	Third Artillery	105	Fifteenth Infantry	19
Artillery School	1	Fourth Artillery	65	Sixteenth Infantry	83
Signal Corps	209	Fifth Artillery	56	Seventeenth Infantry	3
Ordnance sergeants	2	First Infantry	73	Eighteenth Infantry	16
Hospital-stewards	21	Second Infantry	47	Nineteenth Infantry	151
First Cavalry	28	Third Infantry	62	Twentieth Infantry	30
Second Cavalry	72	Fourth Infantry	53	Twenty-first Infantry	27
Third Cavalry	45	Fifth Infantry	88	Twenty-second Infantry	2
Fourth Cavalry	25	Sixth Infantry	0	Twenty-third Infantry	7
Fifth Cavalry	7	Seventh Infantry	11	Twenty-fourth Infantry	1
Sixth Cavalry	70	Eighth Infantry	34	Twenty-fifth Infantry	9
Seventh Cavalry	114	Ninth Infantry	39		
Eighth Cavalry	34	Tenth Infantry	13	Total	9,881

NOTE.—Of the recruits enlisted for mounted service, 693 were for colored cavalry.

E. D. TOWNSEND,
Adjutant-General.

WAR DEPARTMENT, ADJUTANT-GENERAL'S OFFICE,
Washington, October 4, 1873.

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Applications for troops from October 10, 1872, to October 10, 1873.

Office mark.	Applicant.	For what purpose required.
4075—72....	Hon. W. E. Dodge.....	Escort for surveying parties of Great Northern Railroad of Texas.
4634—72....	Hon. A. G. Purman	Asks that detachment be kept at Tallahassee, efforts being made to have them removed.
4629—72....	U. S. marshal, commanding general Gulf Department.	Calls for troops on account of governor of Louisiana having displaced legally constituted board for election returns, &c.
4639—72....	Department of Justice.....	Military assistance for two detectives to be sent to west district Arkansas.
4490—72....	Colonel Morrow, through Division Missouri.	Concerning measures to prevent cattle-stealing by the Kickapoos, &c.
4435—72 ...	Interior Department.....	Military force 25 men at Navajo sub-agency, to afford Navajo Indians protection from Utes.
4481—72....	United States commissioner mining statistics.	Escort to protect an agent in New Mexico.
4281—72....	General Sheridan	Action concerning escort of 40 men for Indian delegation.
4302—72....	United States marshal Louisiana..	Military aid during election; also that troops be stationed at Shreveport, Alexandria, &c.
4173—72....	State Department.....	Concerning probability of colored people of Wellswood, La., not being allowed to vote unless protected.
4558—72 ...	Department of Justice.....	Major Anderson, 10th Infantry, detailed to take evidence for United States in Mexican cattle claims, desires military escort, &c.
4401—72....	Interior Department.....	Commissioner Indian Affairs requests transportation for party of Indians, &c.
4153—72....	Adjutant-General to commanding general Department of the South.	Directs company of artillery at Fort Pulaski be ordered to Savannah till after election.
4358—72....	Treasury Department	On application of assistant treasurer New York, suggests that a force be held in readiness on election day.
4692—73....	President United States	To assist United States marshal in executing mandates of United States court at New Orleans.
4678—72....	Missouri River, Fort Scott and Gulf Railroad Company.	For protection against threatened violence on the neutral lands in Kansas.
5118—72....	Citizens of Lancaster, Ky.....	For troops to remain for their protection.
5293—72....	Interior Department.....	To prevent troubles between Indians and miners on the Ute reservation.
4927—72...	Governor of Alabama	To prevent collision between contending parties at State capitol.
341—73....	S cretary Mendota Town Company, Kans.	Establishment of military post for protection from Indians.
381—73....	C. H. Adams, pension agent	For protection of voters at Lexington, Ky.
417—73 ...	W. E. Dodge	To protect surveying parties on railroads in Texas.
453—72....	United States commissioner mining statistics.	For protection of mining parties.
673—73 ...	Treasury Department.....	To aid revenue officers in Alabama.
672—73 ...	Hon. W. A. Phillips, M. C. elect....	To protect settlers in Upper Republican Valley.
713—73....	Governor of Nebraska.....	Memorial and resolutions of Nebraska legislature for post on west border of State to protect settlers.
798—73....	Legislature of South Carolina	Requests that United States troops be not withdrawn from State.
908—73....	Treasury Department.....	Retention of troops in North Carolina and Georgia to aid in enforcing revenue laws.
1028—73....	Hon. J. A. Hubbell, M. C	For protection of property, &c., in upper peninsula of Michigan, in case of strikes among miners.
1072—73 ..	Citizens of Howard County, Nebr .	For protection against Indians.
1176—73...	Interior Department	Escort for protection of commissioners to Indians opposing Union Pacific Railroad.
1192—73 ...	.....do	Escort, &c., for Bishop Hare, agent to Indians on frontier.
1217—73....	.....do	Escort, &c., to Kickapoos across Texas to Indian Territory.
1275—73....	.....do	Protection of settlers in Nebraska and of surveying party for northern boundary of State.
1273—73....	.....do	Escort, &c., for Professor Hayden's geological and geographical explorations.
1364—73....	Railroad company.....	For protection of settlers, &c., in Southern Kansas.
1152—73....	Surveyor of southern boundary of Wyoming Territory.	For protection of surveying party.
1106—73 ...	Engineer Department	Escort for Lieutenant Wheeler's exploring expedition.
1434—73...	Interior Department.....	For protection of surveyors in Indian country.
1644—72...	G. A. Hayward, recommended by Senator Bogy and Assistant Treasurer A. G. Edwards.	For escort to visit mines in Arizona.
1654—72...	Governor of Louisiana.....	For protection from lawless characters in Shreveport and vicinity.
1733—73....	Surveyor-general Montana	For escort to surveying parties.
1767—73....	Senator Sargent and citizens of California.	For establishment of post on head-waters of Pitt River.
1921—73....	Daniel Ruggles	For protection in colonizing his grant on the Rio Grande.
2084—73....	Citizens of San Pete Valley, Utah	For protection from Indians.

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Applications for troops from October 10, 1872, *&c.*—Continued.

Office-mark.	Applicant.	For what purpose required.
2103—73....	Superintendent of Indian affairs, Montana.	Protection of Crow agency from Sioux and other hostile Indians.
2318—73....	P. W. Perry, supervisor internal revenue, district of Virginia, West Virginia, Georgia, North Carolina, South Carolina, and Florida.	Assistance in breaking up illicit distilleries.
2351—73....	Citizens of Idaho.....	For protection against Indians.
2643—73....	Secretary of the Treasury.....	Escort to treasure party between San Francisco and Omaha.
2753.....	.....do	Escort to treasure party from Fort Yuma to Tucson, Ariz.
2801.....	.....do	Escort to treasure party from Kansas City, Mo., to Santa Fé, N. Mex.
2783—73....	United States deputy marshal in Kentucky.	For assistance in making arrests.
3692—73....	Bishop Rundell, of Colorado.	For more troops in Wyoming Territory.
3754—73....	Interior Department.....	Escort to governor of Texas and staff from Boggy Depot to Fort Sill to attend Indian council.
3986—73....	.....do	For protection of Government property on Bannock and Shoshone reservation.
4003—73....	.....do	To support agent at Red Cloud and Whetstone agencies.
3892—73....	Citizens of Knox County, Nebraska.	For protection from Indians.

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REPORT OF THE INSPECTOR-GENERAL.

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REPORT

OF

THE INSPECTOR-GENERAL.

WAR DEPARTMENT, INSPECTOR-GENERAL'S OFFICE,
Washington, October 10, 1873.

SIR: The inspection service of the Army during the past year has been performed in conformity with the requirements of General Orders No. 87, series of 1872, the five inspectors-general having been exclusively subject to the orders of the Secretary of War and the General of the Army.

My own duties, for the most part, have been confined to the charge of the Inspector-General's Office, at the headquarters of the Army, receiving and examining inspection reports, and extracting therefrom all matters of interest to, or requiring action by, the Secretary of War, the General of the Army, and the heads of the different bureaus of the War Department; and it is believed that much important information has thus been communicated which would not otherwise have come to the knowledge of those officials.

Inspectors-General D. B. Sacket, E. Schriver, N. H. Davis, and J. A. Hardie, during the autumn of 1872 and the winter of 1872 and 1873, made careful and thorough inspections of the Department of the South, a part of the Department of Texas, the entire Department of the Missouri, and the Department of the Gulf.

Early in the spring of 1873 these officers, under orders from the Secretary of War, commenced the inspection of the Departments of Arizona, Texas, Dakota, and the Columbia, thoroughly examining into the condition of the *personnel* and *materiél* of the Army at all the remote and widely dispersed posts, stations, and depots within the limits of those departments—excepting Alaska—and embracing one hundred and seventeen military posts, garrisoned by eighteen regiments of infantry, seventeen companies of artillery, and eight regiments of cavalry. This laborious service involved many thousands of miles of wagon-travel, for the most part over unsettled sections of country infested by hostile savages, and occupied each officer from seven to nine months.

Besides this, other minor inspections and investigations have, from time to time, been made by these officers, thus occupying all their time, and involving voluminous reports, which have been made without the expenditure of a dollar for clerical assistance.

Inspector-General Hardie, at the request of the general commanding the Military Division of the Pacific, and by authority of the Secretary of War, previous to inspecting the Department of the Columbia, visited the headquarters of the expedition against the Modoc Indians, and made certain inspections and reports for the division commander.

In a letter from General Schofield to Colonel Hardie, dated April 21, 1873, is the following:

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In order that the public service may derive the fullest benefit from your tour of inspection in the Department of the Columbia, I request that your inspections may be extended to all branches of the military service, so far as it can be done without interfering with the plans or wishes of the department commander; and that all errors, faults, or defects you may discover be pointed out to the officers concerned, and corrected at once as far as practicable.

The instructions that may thus be given to young and inexperienced officers is one of the greatest benefits expected from your visit to the frontier posts.

* * * * * * *

Substantially similar requests were made of the other inspectors-general by the commanders of the departments of "Texas," "the South," "the Gulf," "Dakota," "Arizona," and "the Columbia," and in accordance with their instructions from the War Department, prompt reports were made directly to those commanders, upon all matters which were deemed of interest to them, or which required their action, and it is believed that those reports received immediate action at the hands of the department commanders.

The inspectors-general report that the commanders of the departments above named rendered great assistance to them in the execution of their duties, by directing that the most ample facilities should be afforded them to investigate every branch of the service at all the posts and stations within their respective commands. The inspectors' reports also show that the officers generally gladly availed themselves of the opportunity afforded by their visits to ask instruction relative to the correct interpretation of doubtful points of law, regulations, and orders and upon other mooted questions regarding the proper performance o military duties; and it seems to me reasonable to presume that the ex tended and diversified experience of these officers, both in the staff and line of the Army, eminently qualify them to give suitable answers to questions of this character, as well as sound advice and instruction to young and inexperienced officers.

This, besides promoting social harmony, will doubtless tend to produce uniformity in the manner of performing military duty in different departments and localities, and will unquestionably fortify and encourage zealous and competent officers in their action, and thus greatly conduce to the discipline and efficiency of the Army.

Assistant Inspectors-General R. Jones, A. Baird, and E. H. Ludington have during the year been attached to the head-quarters of the military divisions of "the Pacific," "the Missouri," and "the Atlantic," respect ively. Their reports show they have been actively and usefully engaged in the duties pertaining to their positions, and, it is believed, to the entire satisfaction of their commanding officers.

Col. J. V. Bomford, Eighth Infantry; Lieut. Col. J. P. Hatch, Fourth Cavalry, and Capt. G. B. Russell, Ninth Infantry, for a portion of the year acted as assistant inspectors-general, but have been relieved.

Maj. W. H. Lewis, Seventh Infantry; Maj. A. W. Evans, Third Cavalry, and Capt. W.W. Sanders, Sixth Infantry, are respectively attached to the head-quarters of the Departments of Dakota, Arizona, and the Gulf, as acting assistant inspectors-general.

In compliance with the requirements of the system instituted by the Secretary of War, in General Orders No. 87, series of 1872, scrutinizing examinations have been made of the accounts of all officers who have made important disbursements of public money during the year. The funds received and expended by them, with the balances they reported due the United States, have been carefully compared and verified by official statements obtained from the Treasury Department and depositories.

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If this system continues to be strictly carried out in accordance with the order, it is believed that few losses will occur to the United States, as it seems hardly possible that a defalcation can be concealed or overlooked for any great length of time, and it is gratifying to state that no embezzlement and but three cases of misapplication of funds have been reported during the year, the latter being small sums which probably will not result in any loss to the Government.

The inspectors report that in some cases the monthly balances of public funds on deposit, with the numbers and amounts of checks drawn, are not regularly furnished disbursing officers by the depositories, which prevents verifying their check-book balances with those of the depositories.

The inspection reports show that the troops have been well supplied with clothing during the year, although the new-pattern uniform has not yet reached some of the more distant posts. Subsistence supplies have been abundant and of good quality, but at a great many posts complaints have been made that large excesses of officers' and canned stores have accumulated and become damaged by age to such an extent as to render it necessary to sell them at much less than cost. At some of the posts three and four years' supply of certain perishable articles are reported on hand. Whether this surplus resulted from over-estimates or from the stores being furnished in excess of requisitions, or from the changes of troops, I am unable to say, but this condition of things has resulted in losses to the United States, and may, it is believed, be to a large extent avoided in the future if the post commissaries and post commanders, with the officers who fill the requisitions, are held to a rigid accountability that they call for and supply no more than is necessary.

Complaints have been made to the inspectors by the officers at many posts that their predecessors, on being relieved, have carried away files of orders, books, and other records which properly pertain to the posts; which practice should be promptly corrected by orders.

Inspector-General Davis states, in his annual report, that post quartermasters do not generally keep a proper morning report, accounting for their employés, public animals, and forage and fuel received, issued, and remaining on hand; this he regards as an important report, which, if properly kept, would avoid some discrepancies which might otherwise occur.

The inspections during the year have also disclosed the fact that at several posts large deficiencies of forage have existed, which the officers responsible have in some instances claimed resulted from great shrinkage in the dry atmosphere of the plains. There are good reasons for believing, however, that in some cases these deficiencies have arisen from want of proper care on the part of quartermasters in weighing and receiving the forage from contractors or predecessors.

Public animals picked up astray or coming into possession of quartermasters otherwise than by regular transfer, as well as forage rentered surplus by short issues, have not in all cases been taken up and accounted for until the attention of the authorities was called to the facts by the inspectors.

These irregularities are, however, exceptional, the inspection reports indicating that the officers performing the duties of quartermasters are generally improving in zeal and efficiency; that better care is taken of public property, and more regard manifested for economy and other interests of the service than heretofore.

All the facts above stated have been reported by the inspectors to

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department commanders, who have, it is believed, taken prompt measures to investigate and correct the irregularities.

To prevent soldiers under charges from being confined for long periods previous to trial, it is suggested that post commanders be invested with authority to present for trial, before general courts-martial, cases not of an unusual character, that have arisen subsequent to the ordering of the court, without the charges being first referred to department commanders, which, at some remote posts, consume six weeks' time, and frequently involve the necessity and expense of convening another court-martial.

Notwithstanding the fact that the condition of the soldier in our Army has been greatly ameliorated, and his pay and allowances increased, by recent regulations and legislation, and although the aggregate number of desertions in the past fiscal year has been about five hundred less than during the previous year, yet the desertions have continued to such an extent as to still constitute an evil to the service of the greatest magnitude. Many remedies have been suggested as preventive for this, one of the most heinous of military crimes, which involves not only an entire disregard of soldierly honor, but a deliberate act of perjury; yet nothing seems to have had the desired effect. But few deserters have been apprehended on the frontier, for the reason that in many localities they have been protected by the citizens, who do not generally appreciate the turpitude of the crime.

One of the inspectors-general has suggested a remedy which appears to me worthy of consideration. It is, that desertion be constituted by legislative enactment as a felony cognizable by the civil courts of criminal jurisdiction, the offenders to be arrested by marshals and deputies, like other criminals, but this jurisdiction to be concurrent with military courts.

This, it is believed, would have the effect of educating and impressing the public mind with a proper sense of the criminality of the offense, and prevent evil-disposed persons from harboring deserters.

It would, in my judgment, greatly augment the efficiency of the Army were more instruction given to recruits previous to sending them to organizations from the recruiting depots.

Since the reduction of the Army to the existing standard, urgent calls for recruits to fill vacancies in the different regiments upon the frontier have generally prevented them being kept at the depots more than a week or two, and they frequently join their companies knowing nothing of the use of arms, or even the position of a soldier. Whereas if they were properly instructed for three months at the recruiting depots they would be proficient in the company exercises.

The majority of the troops are now doing duty in the Indian country, where they are not only required to perform service as arduous and hazardous as in time of war, but they are often compelled to procure material for and build their own quarters, which, with their other indispensable fatigue duties, consumes so much of their time that it is frequently impossible to give them much systematic military instruction at the military posts on the frontier.

Besides, the exigencies of the service very often leave but one commissioned officer with a company, and his time is so much taken up with scouting, escorting, and his other multifarious duties, that he can give but little attention to drills or other military teaching.

I deem it proper to remark here that the adoption of the new code of Army Regulations, recently submitted to Congress for approval, will pro-

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vide remedies for most of the irregularities and evils that have been mentioned.

The old Army Regulations of 1863, which, under the act of July 28, 1866, are to continue in force until the adoption of a new code, do not meet the existing exigencies of the service. Indeed, they have been so altered and amended by laws and orders, that it often requires considerable study and research to determine their actual signification Besides, this edition is now exhausted, with but few tattered copies extant, so that, unless something is done soon, it may be truly said that our Army have no regulations.

The officers, for the most part, are exceedingly desirous that a new code which they can comprehend should be speedily promulgated. In view of this, and the additional fact that the regulations now before Congress will settle many mooted military questions that have never been touched upon in former editions, and this in accordance with opinions of the best military minds we have ever had in service, and as *in my judgment* they are in other respects eminently adapted to the existing necessities of the service, I beg leave again most respectfully to recommend the early action of Congress upon them.

Respectfully submitted.

R. B. MARCY,
Inspector-General.

The ADJUTANT-GENERAL OF THE ARMY.

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REPORT OF THE JUDGE-ADVOCATE-GENERAL.

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REPORT

OF

THE JUDGE-ADVOCATE-GENERAL.

WAR DEPARTMENT, BUREAU OF MILITARY JUSTICE,
Washington, D. C., October 1, 1873.

SIR: In compliance with instructions of circular of the 13th ultimo, I have the honor to submit for your consideration the following statement of the business of this Bureau since the date of my last annual report, of October 1, 1872:

1. Number of records of military courts received, reviewed, and registered, 16,088.

2. Number of special reports made upon court-martial proceedings, and applications for remission of sentences, and upon the miscellaneous questions of law, &c., referred for the opinion of the Bureau, 823.

3. Abstracts of proceedings of trials furnished to the proper officials of the War and Treasury Departments, 1,737.

4. The copies of records furnished under the ninetieth article of war to parties tried by military courts have amounted to 7,723 pages.

The amount of business thus performed during the past year varies little from that reported for the year preceding.

The work of systematically arranging, indexing, &c., the voluminous official papers of the late Provost-Marshal Baker, heretofore reported as in progress, has been completed during the current year.

Respectfully submitted.

J. HOLT,
Judge-Advocate-General.

Hon. W. W. BELKNAP,
Secretary of War.

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REPORT OF THE QUARTERMASTER-GENERAL.

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WAR DEPARTMENT,
QUARTERMASTER GENERAL'S OFFICE,
Washington, D. C., October 10, 1373.

GENERAL: I have the honor to forward herewith, for the information of the honorable Secretary of War, a report of the operations of the Quartermaster's Department during the fiscal year ending on the 30th day of June, 1873, in duplicate.

Very respectfully, your obedient servant,

M. C. MEIGS,
Quartermaster General, Bvt. Maj. Gen., U. S. A.

The ADJUTANT-GENERAL OF THE ARMY.

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REPORT

OF

THE QUARTERMASTER-GENERAL.

QUARTERMASTER GENERAL'S OFFICE,
Washington, D. C., October 10, 1873.

SIR: I have the honor to submit the annual report of operations of the Quartermaster's Department during the fiscal year ending 30th June, 1873.

On the 1st July, 1872, the balance on account of appropriation for years prior to 1st July, 1870, remaining to credit of the Quartermaster's Department in the Treasury undrawn, was by report of last year		$2,290,164 71
Amount placed to the credit of appropriations during the year by deposits of funds for redistribution, and of amounts received from sales to officers of public property purchased prior to July 1, 1870		373,035 81
Amount expended for other Departments prior to July 1, 1870, and refunded by them during the last fiscal year		424,428 85
		3,087,629 37
Requisitions on settlements made at the Treasury of claims and accounts		1,449,743 37
Balance to the credit of appropriations for periods prior to July 1, 1870, remaining in the Treasury June 30, 1873		1,637,886 00

Appropriations for the fiscal year ending June 30, 1871.

Balance in the Treasury July 1, 1872		$272,862 25
Amount placed to the credit of appropriations during the year by deposits of funds for redistribution, and of amounts derived from sales to officers of public property purchased during the year ending June 30, 1871		8,374 55
Amount expended for other Departments during the fiscal year ending June 30, 1871, and refunded by them during the last fiscal year		33,838 70
Total		315,075 50
Remitted to disbursing officers during the year, on requests of the Quartermaster General	$550 65	
Requisitions on settlements made at the Treasury of claims and accounts	55,019 45	
		55,570 10
Balance in the Treasury June 30, 1873		259,505 40

Appropriations for the fiscal year ending June 30, 1872.

Balance in the Treasury, July 1, 1872, of amounts appropriated by acts of Congress approved March 3, 1871, and May 18, 1872		$99,863 39
Appropriation for deficiencies, act of Congress approved March 3, 1873.		1,110,000 00
Transportation of insane volunteers, act of Congress approved May 18, 1872		1,000 00
Amount placed to the credit of appropriations during the year by deposits of funds for redistribution, and of amounts derived principally from sales to officers of public property purchased during the year ending June 30, 1872		331,024 32
Amount expended for other Departments during the fiscal year ending June 30, 1872, and refunded during the last fiscal year		21,199 92
Total		1,563,087 63

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Remitted to disbursing officers during the year on requests of the Quartermaste rGeneral	$148,296 84	
Requisitions on settlements, made at the Treasury, of claims and accounts	384,078 67	
		$532,375 51
Balance in the Treasury July 1, 1873		1,030,712 12

Appropriations for the fiscal year ending June 30, 1873.

Appropriations for fiscal year	$12,114,219 00
Appropriations for deficiencies, act of March 3, 1873	1,570,000 00
So much of the $200,000 appropriated by the act of March 3, 1873, for preservation of clothing and equipage from moth and mildew, during the year ending June 30, 1874, as was used during the year ending June 30, 1873, the appropriating act rendering it available in that year	150,000 00
Amount placed to the credit of appropriations during the year by deposits of funds for distribution, and of amounts derived principally from sales to officers of public property purchased during the year ending June 30, 1873	16,114 56
Amount expended for other Departments, and refunded by them during the fiscal year	25
Total	13,850,333 81

Remitted to officers for disbursement on requests of the Quartermaster General	$13,365,188 96	
Requisitions on settlements made at the Treasury of claims and accounts	22,032 52	
Transferred to the Ordnance Department for the manufacture of knapsacks, canteens, and great-coat straps.	41,953 33	
		13,429,174 81
Balance in Treasury June 30, 1873		421,159 00

The accounts and vouchers which have been examined in this office since the last annual report show disbursements as follows:

On account of appropriations for years prior to the fiscal year ending June 30, 1872	$1,843,605 1
For the fiscal year ending June 30, 1872	8,041,800 0
For the fiscal year ending June 30, 1873	5,638,632 9
Total	15,524,038 1

Appropriations are charged with these disbursements as follows:

Appropriations for the Quartermaster's Department.

	Prior to July 1, 1871.	Fiscal year 1871–1872.	Fiscal year 1872–1873.	Total.
Regular supplies	$376,804 66	$2,940,066 23	$2,182,432 29	$5,499,303
Incidental expenses	165,975 38	903,317 10	705,951 31	1,775,24[illegible]
Purchase of cavalry and artillery horses	375 00	181,829 23	47,391 00	229,09[illegible]
Barracks and quarters	295,676 75	1,081,257 06	793,619 19	2,170,553
Army transportation	959,684 96	2,213,396 60	1,347,823 06	4,520,904
Mileage, transportat on of officers' baggage	486 39			48[illegible]
Purchase, manufacture, and preservation of clothing, camp and garrison equipage	10,499 36	491,445 92	413,158 29	915,10[illegible]
Purchase of stoves	18,145 31	16,593 65	10,527 55	45,26[illegible]
National cemeteries	8,960 32	156,456 29	62,921 62	228,27[illegible]
Hospitals			8,224 93	8,22[illegible]
Headstones			1,814 00	1,81[illegible]
Total	1,836,548 13	7,984,362 08	5,573,863 24	15,394,7[illegible]

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Special appropriations and expenditures for other Departments.

	Prior to July 1, 1871.	Fiscal year 1871–1872.	Fiscal year 1872–1873.	Total.
Fire-proof buildings at Jeffersonville Depot, Ind	.....	$51,584 12	$64,269 70	$115,853 82
Army contingencies	$142 50	719 82	500 00	1,362 32
Pay Department	1,555 26	978 07	.....	2,533 33
Subsistence Department	2 25	2 25	.....	4 50
Medical Department	782 43	1,900 72	.....	2,683 15
Ordnance Department	.....	56 00	.....	56 00
Indian Department	4,574 56	2,112 65	.....	6,687 21
Soldiers' Home	.....	84 32	.....	84 32
Total	7,057 00	57,437 95	64,769 70	129,264 65

At the close of the fiscal year the balances remaining in the hands of officers and not needed to discharge liabilities incurred during the fiscal year, and payable out of these balances, were called in and transferred to officers who found themselves deficient in funds to pay for supplies and services purchased or rendered under orders of their commanders.

This money, scattered all over the United States and Territories among some three hundred disbursing officers, has not yet been all brought into the Treasury, and the process of settlement of outstanding accounts is still going on. It appears that these balances thus collected will not be sufficient to pay for all the supplies purchased and services rendered, and a deficiency estimate has accordingly been submitted. It amounts to:

Regular supplies	$206,000
Incidental expenses	241,000
Army transportation	592,000
Barracks and quarters	127,000
Total	1,166,000

The principal deficiency is in the appropriation for transportation; but there are also deficiencies in regular supplies, incidental expenses, and barracks and quarters.

It is impossible for any human intelligence to predict the exact nature and cost of the military operations of a nation during a period of twelve months, which begins nearly twelve months after the estimate is made.

The average ordinary general expenses of the Army do not differ greatly from year to year, but the separate items differ greatly, as changes are more or less frequent in the stations of the troops, and as new posts are established and new districts occupied.

The estimates of this office are based upon experience, and when reduced it is not always possible for the War Department to so regulate the military movements and to control the cost of articles given by law and regulations to the troops in certain definite quantities as to keep within the appropriation.

The law gives to officers and men certain fixed supplies of clothing, of quarters, of transportation, and when the appropriations are deficient, the officers find themselves in the dilemma of failing to provide what the law requires them to supply, or of incurring liabilities beyond the amount of the appropriations. Whichever course is taken violates law.

The forms and methods of keeping and making accounts and returns in the Quartermaster's Department have been improved and simplified by the issue of General Orders No. 64, October 25, 1871; No. 68, November 4, 1871; No. 7, February 21, 1872, and No. 98, November 14,

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1872. These four orders publish in compact form the existing regulations for making returns of money and of property, and those which govern the system of transportation of military material and of troops.

They have now been in operation, the two former for nearly two years, and the latter for one year, and the annual reports of officers doing duty in the Quartermaster's Department are bearing almost unanimous testimony to the advantages in simplicity and intelligibility of the forms and system now in use and established by these general orders.

I regret to see in the system of regulations recommended to the War Department by a board of officers, and, under the law of July 15, 1870, communicated to Congress, a proposition to transfer from the Quartermaster's Department to the Commissary Department a large portion of the duties of this Department.

The Quartermaster's Department has always had as one of its special duties the transportation of all military stores. It is organized and trained especially to this duty, and there can be no doubt that simplicity, and economy, and efficiency in military operations are best secured by committing such an important branch of the service to some one military department. Hence, I consider as likely to be very injurious, should it be adopted, the proposition to transfer to the Subsistence Department the transportation and storage of subsistence supplies.

The proposition is that the Subsistence Department shall be responsible for and have control over the transportation of its supplies; that commissaries, in addition to purchasing and issuing as heretofore, shall contract for all transportation of their supplies, wherever rail or water transportation can be contracted for or hired; that, when supplies are to be transported to posts away from rail or water, the commissary shall make requisition on the quartermaster, at the point where such supplies leave rail or water, for Government wagons and teams for their transportation. If the quartermaster cannot furnish these, the commissary to hire wagons or contract for the delivery of the supplies at the place of destination; and at points of transshipment, if there are no suitable store-houses, the commissary to hire or build such as are needed. This, if adopted, will transfer to the commissary a large part of the duties of the quartermaster. It will establish two great parties competing against each other at all important strategic points for transportation. The officer of each department will have as a first duty the success of his own department of the service, the fulfillment of the orders he receives. If there is but one steamboat, the quartermaster and the commissary will compete for its control, and the prices of freight will advance.

If there is a scant supply of wagons, of mules, or of oxen, the same competition will spring up. Instead of one department dealing with the owners of the steamboat, the railroad, the wagon, the inland mule or ox-train, there will be two, each acting in the interest of the same party, the United States, but competing and bidding against each other. So, too, instead of one department and one set of officers, as heretofore, constructing or renting the requisite store-houses, there will be two competing for the lease, and as the quartermaster will have no footing in the commissary store-houses there will be two store-houses erected or hired at the expense of the Treasury instead of one. Responsibility, too, will be divided and weakened. The commissary is to do these things after his goods leave the railroad or steamer in case the quartermaster is unable to furnish the wagons and has no spare store houses.

There are other provisions in the draft of these regulations, as printed

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by Congress, H. R. Report 85, which make radical changes in the positions of large numbers of officers.

The Quartermaster's Department has been recognized by law, and by regulations and orders, as a part of the general staff of the Army. In it promotion and rank are regulated as a part of the staff. These proposed regulations propose to change all this, and to remand certain most important departments of the staff to a separate and anomalous condition as parts of a special staff or administrative service or supply-branches of the service.

The experience of many years in this country, and observation of the course of military events here and elsewhere, which in the life-time of this generation have been on a very great scale, both at home and abroad, have conclusively vindicated the system of this country which gives to all officers of the staff of the Army on whose intelligence, skill, and zeal the application and support of the physical and moral power of the soldier depend, military rank and military responsibility. This principle has been lately introduced even into the Navy. It secures a higher order of service, greater zeal, intelligence, ardor, and integrity, and now the draft of new regulations proposes to cripple and weaken this system by driving these several corps of intelligent officers out of the position and standing in which they have won honor to themselves, done credit to the Army, and good service to their country in time of its greatest need.

While the system of reports and accounts has been simplified by the action of the War Department in the publication of these general orders, legislation has introduced into all the accounts of this office, and of hundreds of disbursing officers, a serious difficulty and complication. Each officer of the Quartermaster's Department who disburses money has occasion to expend it under several of the different heads of appropriation. Though he may have a large sum of money to his credit and subject to his check, he may be unable to pay a just bill for forage or for services because he has none of that particular appropriation on hand. This increases nearly nine-fold the entries in his accounts. It often occasions delay in payment of the public creditor, and by complicating the accounts increases the liability to errors and disallowances. Both the officer and the public creditor suffer, and the Treasury suffers in many ways, as each disbursing officer must have a working balance under each head of appropriation; the total amount lying to his credit, unused, in the public depository must be much greater than if, out of any sum to his credit, he was allowed to pay any just account. The remedy for this evil—and it is a great one—would be the making of the appropriations for the Quartermaster's Department under a single title.

While the total gross sum needed for the service of this Department can be estimated for any ordinary year with considerable accuracy, it is not possible to secure absolute accuracy in each of the million items which go to make up the sum total, or in the several divisions under which it has been customary to present these estimates to Congress. It would be much better to appropriate for the Quartermaster's Department in one gross sum equal to the aggregate of the estimate, and thus simplify accounts and secure the prompt and certain payment of the public creditor. All dealers now charge something for the risk of delay which experience shows them that the present system too often causes.

The report of the officer in charge of the branch of this office which examines the accounts of disbursing officers sets forth in detail the inconvenience and injury to the service arising from this system, and the report (H. R. No. 87, Forty-second Congress, third session) by

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the Committee on Expenditures in the War Department, printed by the House of Representatives, also very forcibly presents the case.

The following table, which gives the balances remaining in Treasury on account of the Quartermaster's Department on the 30th June, 1873, will show the complication of accounts caused by the requirement of the law to treat each head of appropriation under each year as a separate and distinct appropriation, to be drawn upon and accounted for separately. There are forty-three separate appropriations.

Balances of appropriations undrawn by the Quartermaster's Department, July 1, 1873.

	Prior to July 1, 1870.	1870–1871.	1871–1872.	1872–1873.	1873–1874.
Regular supplies	$363,400 86	$82,068 03	$89,263 98	$1,688 55	$4,500,000 00
Incidental expenses	154,582 71	63,330 62	128,223 05	3,813 40	1,300,000 00
Purchase of horses	51,773 50	12,231 29	22,109 73	7,692 96	350,000 00
Barracks and quarters	125,124 02	45,075 91	79,902 32	32,952 33	1,700,000 00
Transportation of the Army	801,844 32	8,597 38	684,684 14	156,541 92	4,492,096 50
Transportation of officers' baggage	29,882 66				
Clothing of the Army	76,312 66	47,180 55	26,488 90	4 53	1,045,037 92
Stoves	34,493 27	21 60	40 00		
National cemeteries					275,000 00
Clocks for permanent posts	522 00				
Hospitals				15,473 49	100,000 00
Expenses of sales				9,157 57	
Head-stones				183,866 25	1,000,000 00
Monument at Salisbury, N. C.				10,000 00	
Preservation of clothing					50,000 00
Total	1,637,936 00	259,505 40	1,030,712 12	421,191 00	14,812,134 42

The number of money-accounts and of property-returns examined during the past year is not so great as in previous years. This is due in great measure to the increased difficulty of the settlement under the act of 3d June, 1870. But at this time all accounts and returns for years prior to 1873 have been examined, and nearly all those for first quarter of 1873 have been examined. Those for the second quarter of 1873 are now in course of examination, and the examination of those for the third quarter, which has just closed, will be commenced before all are received from officers. The work of examination may therefore be said to be up to date.

The Quartermaster's Department is charged with the duty of providing the means of transportation, by land and water, for all troops and all material of war. It furnishes the horses of the artillery and cavalry, and horses and mules for the trains. It provides and distributes clothing, tents, camp and garrison equipage, forage, lumber, and all material for camps and for shelter of troops and of stores. It builds barracks, hospitals, store-houses; provides wagons and ambulances and harness, except for cavalry and artillery horses; builds or charters ships, steamers and boats, docks and wharves; constructs and repairs roads, railways, and bridges; clears out obstructions in rivers and harbors when necessary for military purposes; provides, by hire or purchase, grounds for military encampments and buildings; pays, generally, all expenses of military operations not by law expressly assigned to some other department; and, finally, it provides and maintains military cemeteries, in which the dead of the Army are buried.

Food, arms, ammunition, medical and hospital stores are purchased and issued by other departments, but the Quartermaster's Department transports them to the place of issue, and provides store-houses for their preservation until consumed. The corps of officers upon whom all these

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duties fall has been reduced by time until it is not able to fill well every post at which an officer of activity and ability is needed. Its ranks should be now opened to promotion and appointment.

Many officers of the line, finding themselves charged with heavy responsibility as acting assistant quartermasters, and having insufficient assistance, at frontier posts, ask that the enlistment of post quartermaster-sergeants may be allowed by law. Such non-commissioned officers, selected for experience and fidelity shown in actual service, would be very useful. They would remain at posts in charge of the property when the garrison changed, and thus would preserve knowledge and responsibility now often lost through the frequent change of officers. Such officers also ask that some compensation may be granted them for the risk which they incur in the disbursement of public money, and for the responsibility involved in the care of large amounts of public property.

I have the honor to renew the recommendation heretofore made, that an allowance of $10 per month be made in addition to the pay of every line officer who is detailed by proper authority as acting assistant quartermaster of a military post, when such detail is properly reported to and approved by the War Department. Such an allowance is only just, and it would relieve the service from the feeling that heavy duties are imposed by such detail without any recognition or compensation. Such duties are important, and they should be sought by good officers, not imposed upon the slothful or unwilling.

About three hundred and eighty officers of the line act every year for some portion of the time as acting assistant quartermasters.

The officers of the regular establishment of the Quartermaster's Department, all of whom have served through the late war and have had much experience, are stationed at the more important depots and posts. Yet many posts, involving heavy responsibility in money and property, and calling for good judgment, integrity, and zeal, are occupied by subalterns of the line, on duty as acting assistant quartermasters.

The expenditures of the Quartermaster's Department have been distributed throughout the country among the several military departments and divisions, and the principal purchasing and supply depots, as follows:

Remittances to disbursing officers in the Military Division of the Atlantic		$448,872 59
Of which there was sent to—		
Department of the East	$335,267 20	
Department of the Lakes	113,605 39	
To the Military Division of the Missouri		6,230,133 79
Of which there was sent to—		
Department of the Missouri	1,024,892 80	
Department of the Platte	1,135,670 93	
Department of Dakota	854,154 35	
Department of Texas	1,748,234 29	
District of New Mexico	451,308 25	
Depot at Chicago	499,756 46	
Depot at Saint Louis	516,116 71	
To the Military Division of the Pacific		3,066,342 37
To the Military Division of the South		1,020,054 64
Of which there was sent to—		
Department of the South	695,792 61	
Department of the Gulf	324,262 03	
To the principal depots		2,364,295 84
Of which there was sent to—		
New York	349,760 33	
Washington	726,071 52	
Philadelphia	1,108,110 20	
Jeffersonville	180,353 79	

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To officers in immediate charge of national cemeteries		$137,104 85
To independent posts		98,484 88
Of which there was sent to—		
West Point, N. Y.	$44,905 74	
Springfield armory, Mass	2,431 68	
Fort Columbus, New York Harbor	826 50	
Cavalry depot, Saint Louis	3,800 93	
Newport Barracks, Ky	7,551 37	
Columbus arsenal, Ohio	1,223 50	
Indianapolis arsenal, Ind	789 10	
Watertown arsenal, Mass	11,838 60	
Allegheny arsenal, Pa	2,557 00	
Watervliet arsenal, N. Y.	10,261 25	
Frankford arsenal, Pa	200 00	
Pikesville arsenal, Md	317 11	
Augusta arsenal, Ga	2,337 30	
Kennebec arsenal, Me	805 93	
Benicia arsenal, Cal	4,148 73	
Detroit arsenal, Mich,	892 46	
Rock Island arsenal, Ill	3,597 68	
Total amount remitted		13,365,188 96

Remittances from the appropriation for the fiscal year ending June 30, 1873, have been made as follows:

Regular supplies:		
Fuel	$1,128,956 68	
Forage	3,197,430 06	
Straw	84,801 60	
Stationery	94,894 89	
Stoves	88,615 23	
Total regular supplies		$4,594,700 46
Incidental expenses		1,300,380 48
Horses, cavalry and artillery		292,714 54
Barracks and quarters:		
Rent of quarters for officers	$323,092 00	
Rent of store-houses, offices, commutation of quarters for enlisted men, &c	312,318 03	
Building-material for repairs	550,161 64	
New buildings authorized	281,356 26	
Total barracks and quarters		1,466,928 03
Army transportation		4,325,601 99
Clothing and equipage		858,412 07
National cemeteries		250,729 70
Hospitals		84,526 51
Stoves		10,000 00
Preservation of clothing and equipage from moth and mildew		150,000 00
Mojave claims, (special appropriation)		14,219 00
Head-stones		16,133 75
Expenses of sales		842 43
Total amount remitted		13,365,188 96

INSPECTION BRANCH.

To this branch of this office are committed the keeping of records o stations and duties of officers, of correspondence, the examination o reports of inspection, of reports of boards of survey, the filing and pre servation and distribution of orders and circulars. Through this branch of the office about 180,000 papers pass and are recorded yearly. List of the officers of the Quartermaster's Department, and of officers of th line who have served in the Quartermaster's Department during th year, with their stations and duties, will be found attached to th report.

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INDEBTED RAILROAD COMPANIES.

At the close of the war, under executive orders of 8th August and 14th October, 1865, there were sold on credit to various railroad companies, principally in the South, railroad material to the appraised value of..	$7,556,033 95
There remained due and unpaid from certain of these railroads on 30th of June, 1872	4,734,442 43
During the past fiscal year, interest and expenses accrued upon this debt to the amount of	101,573 95
Payments during the year, on account, have amounted to	151,303 44
On the 30th June, 1873, the debt uncollected amounted to	4,658,924 07
exclusive of the sum of $25,788.87 due from the New Orleans and Ohio Railroad, which debt is lost by the bankruptcy of the company. The total collections on account of this debt, to 30th June, 1873, amount to	5,116,605 53

The earlier collections, being reimbursements of the Quartermaster's Department for property originally purchased with its appropriations, were applied to its service, reducing the amounts of the annual estimates for appropriations; but since the passage of the law of May 8, 1872, requiring all proceeds of sales of public property to be deposited in the Treasury, to credit of miscellaneous receipts, these collections have taken that course. Fifty railroads originally availed themselves of the privileges of the executive orders. Thirty of them have paid their debts in full with interest. Twenty now remain in debt to the United States on this account.

A full statement of these accounts accompanies this report; to it reference is made for detailed information.

Against some of the roads greatly in default suits have been commenced in the United States courts.

Since my last report the suit against the Nashville and Decatur Railroad has been compromised and settled by the Secretary of War, under authority of the act of 3d March, 1871, (16 Stat., chap. 119) for the sum of $70,000, of which $6,000 was paid in cash, the balance to be paid in ten years from 1st July, 1872, with interest, semi-annually, at the rate of 5 per cent. per annum, secured by bond and lien upon the property of the company, guaranteed by the Louisville and Nashville Railroad, and by decree of the United States circuit court affirming the liability, and to be enforced by execution in case of default.

Other suits are yet unsettled, for details in reference to which I refer to the report of Major Ludington, the officer in charge of the transportation branch of this office, which accompanies this report.

Some of the roads largely indebted to the Government, and which have given bond for the application of their postal earnings to the payment of their debt, refuse or persistently neglect to give the order for the payment of their earnings, which, in the judgment of the Post-Office Department, is necessary, before the money can be thus applied. Some of these earnings have thus, under the law, lapsed into the Treasury; other considerable amounts are locked up. They are not turned over to the roads, but not being turned over to this Department it cannot credit the debt account of the railroads with them.

Some provision of law for the collection of this money and settlement of the debt, so far as it will go, is desirable.

TRANSPORTATION.

The General Order No. 98, of 1872, establishing the improved system of transportation, has been distributed to officers of the Army and to all railroads and transportation companies having dealings with this

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office. It is found to be satisfactory to the officers and to the public with whom they deal.

The total movement of transportation during the year, thus far reported, amounts to 72,860 persons, 8,148 beasts, and 164,125,223 pounds of material.

The cost of railroad transportation during the year amounts to $1,235,579.43, of which accounts for $921,514.87 have been settled or transmitted by this office to the Treasury for settlement.

The movement over the Pacific Railroad has been:

Name of railroad.	No. of persons moved.	No. of beasts moved.	Freight in pounds.
Union Pacific	6,166	1,763	21,697,106
Central Pacific of California	3,034	63	2,444,211
Kansas Pacific	1,951	390	5,711,947
Sioux City and Pacific	223	36	3,544,054
Total	11,374	2,252	33,397,318

The cost of this service is estimated at:

For the Union Pacific Railroad	$445,501 00
For the Central Pacific Railroad	136,598 07
For the Kansas Pacific Railroad	149,797 00
For the Sioux City and Pacific Railroad	2,402 44
Total value of service of the Pacific railroads during the year	734,298 51

Until the passage of the act of 3d March, 1873, one-half the earnings of these roads for military transportation was paid in cash, on proof of service, and the other half was retained by the Treasury to be used in payment of the interest on the United States bonds issued to them. Since the passage of that law the whole of these earnings have been withheld by the Secretary of the Treasury, but it is charged against the appropriations for transportation of the Army.

The earnings of the Pacific railroads in the previous fiscal year, ending June 30, 1872, were $800,857; in the year ending June 30, 1871, $767,047.99.

WAGON AND STAGE TRANSPORTATION.

By wagon we moved during the year 756 passengers, 32,004,635 pounds of material; by stage, 1,380 passengers, 3,648 pounds of material. The cost of wagon transportation was $997,943.44; of stage transportation, $59,319.29.

Thirty-two contracts for wagon transportation are reported during the year.

The existing contract for wagon transportation from the line of the new Atchison, Topeka and Santa Fé Railroad, and from the Kansas, Pacific and Denver and Rio Grande Railroads, to posts in the Department of Missouri, and in Texas and New Mexico, and to Camp Apache, Arizona, is at the rate of 90¾ cents per 100 pounds per one hundred miles. This is a considerable reduction from the previous contracts, which averaged $1.17½.

The existing wagon contract rates in Texas generally show a material reduction in price, attributable to the extension of railroads into the interior, the shortening of the wagon routes, and the avoidance of the routes through the heavy soils and wet climate of the coast.

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On the Pacific coast the rates have slightly increased. The demand for transportation due to the Modoc war, carried on during the rainy season, will account for this increase. That campaign was very destructive to the means of transportation.

WATER TRANSPORTATION.

By water the movement has been of 37,789 persons and 2,026 beasts, and 55,467,201 pounds of stores. The cost of this, so far as the bills have been settled, was $760,973.58.

Three small steamers and two schooners owned by the United States have cost during the year $37,413.19. Twelve vessels have been hired or chartered during the year, at a cost of $43,056.76. Both these sums are included in the aggregate cost of transportation by water, reported above.

During the past fiscal year accounts and claims for transportation service rendered in previous years have been paid, or transmitted from this office to the Treasury for payment, amounting to $652,409.17.

CONTRACTS FOR REGULAR AND MISCELLANEOUS SUPPLIES.

During the year 614 contracts for supplies were reported to this office, as follows: For forage, 230 contracts for 20,318,814 pounds of oats or barley, 19,372,472 pounds of corn, 30,744 tons of hay, 439,000 pounds of bran; 11 for 2,508 tons of straw; 30 for 22,011 tons of coal; 144 for 84,022 cords of wood; 37 for 49,075 bushels of charcoal; 4 for construction of quarters; 47 for transportation; 7 for horses and mules; 12 for clothing, camp and garrison equipage; 16 for national cemeteries, and many for miscellaneous supplies and services.

FORAGE, STRAW, AND FUEL.

The issues of these supplies have been: Corn, 588,488 bushels; oats, 939,690 bushels; barley, 172,870 bushels; hay, 48,588 tons; fodder, 116 tons; straw, 3,292 tons; bran, 55,084 bushels. Of wood, the issue was 130,786 cords; of anthratic coal, 16,937 tons; of bituminous coal, 15,300 tons.

ANIMALS.

One thousand nine hundred and thirty-eight horses, costing $255,460.19, were bought during the year. The average cost in California was $110.11; in the Department of the Columbia, $115; Department of the Missouri, $126.36; in Texas, $132.46; Dakota, $139.

In addition to occasional purchases of horses to supply losses, 1,200 remounts were authorized this spring for the several cavalry regiments, as follows: For First Cavalry, none; Second Cavalry, 175; Third Cavalry, none; Fourth Cavalry, 175; Fifth Cavalry, 150; Sixth Cavalry, 100; and Seventh, Eighth, Ninth, and Tenth Cavalry, each 150. Those for the Second, Sixth, Seventh, and Tenth Regiments were purchased in Missouri, Iowa, and adjoining States; those for the Fifth, in California; those for the Fourth, in Texas; those for the Eighth, at Leavenworth and in Colorado, and those for the Ninth, at points designated by the general commanding Department of Texas. These purchases were made by boards of officers assembled by the department commanders, each board consisting of a quartermaster and one or two

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officers of the regiment for which the horses were intended. The boards moved through the districts assigned for their operations; published their wants by posters, and purchased from farmers and stock-raisers direct, without intervention of middlemen. The result has given satisfaction, and the system secured good horses at fair prices.

MULES.

Two thousand three hundred and ninety-seven mules were purchased for the trains at a cost of $328,033.02. The greater number of these were bought for the expedition to escort the Northern Pacific Railroad surveying party from Fort Abraham Lincoln, on the Missouri, to and beyond the Yellowstone River. The average cost of mules was $137.

One thousand and fifty-one horses were sold for $46,624.43; 200 mules, for $9,313.06. The proceeds, $55,937.49, have been deposited in the Treasury to the credit of miscellaneous receipts.

Four hundred and twenty-four horses and 489 mules are reported to have died, and 158 horses and 100 mules to have been lost or stolen during the year, and the number in service at the close of the year was 10,130 horses and 10,425 mules.

ARMY WAGONS AND HARNESS.

There are reported in service 3,107 wagons, 125 spring-wagons, 240 ambulances, 23,411 sets of wagon-harness, 2,148 sets of ambulance-harness, all serviceable.

The stock of wagons in the Army has suffered by use and age. Even those kept in store have deteriorated by dry-rot and by attacks of insects, to which hard timber is liable, so that many of those in use were unreliable and unfit to be used on a long march. The Yellowstone expedition, in Department of Dakota, was outfitted with a new train, and many new wagons have been sent to other departments to replace those which had failed or threatened to fail.

Five hundred and fifty new wagons were purchased during the year. Two hundred and fifty, purchased in open market to meet the emergency of the immediate outfit of the Yellowstone expedition, cost $175 each. Contracts were made for the others, giving more time for the manufacture, at $149.50 each.

The train-wagon used for many years in the operations of the United States Army before the war is of excellent design and construction. In the very dry climate of the higher plains, and in the deserts of the Colorado and Gila, exposed to a scorching heat, and in an atmosphere without moisture, the timber shrinks and cracks. The wagon-builders of this country have for several years been experimenting with metallic hubs, many of which have been patented. Of some of the best of these, many thousands are now annually made and put into use. I believe that some of them will prove to be better fitted for use in the extremely dry climates than wood, and samples of each of those which appeared to be best have been purchased and distributed to posts in the most trying climates for trial. The change is an important one, and will not be made, generally, unless the result of these trials is conclusive in favor of some one of the metallic hubs.

HORSE-SHOES AND SHOEING-MATERIAL, SMITHS' AND SADDLERS' TOOLS.

Under the provisions of General Orders No. 2, War Department, Adjutant-General's Office, January 2, 1873, the supply of tools and of shoes

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for shoeing cavalry and artillery horses was transferred from the Quartermaster's Department to the Ordnance Department, and large quantities of these materials and tools purchased by the Quartermaster's Department have, under that order, been transferred to the officers of the Ordnance Department.

The Quartermaster's Department must still keep smiths and tools for repair of its wagons, and for shoeing the draught animals, at every post, and when there are, as is frequently the case, no enlisted farriers with a body of cavalry, its officers are still called upon to provide for shoeing their horses. Thus two establishments are kept up throughout the military service to do the same thing, which appears not to be an efficient or economical arrangement.

EPIZOOTIC.

The epidemic catarrh which traversed the continent during the past year, visited, it is believed, every military post, and attacked a great majority of the horses and mules of the military establishment. It appeared early in New York and its vicinity, and a method of treatment adopted by Brevet Major-General Ingalls, assistant-quartermaster general, upon the advice of the veterinary surgeons of New York, was printed and distributed to military posts:

HEADQUARTERS DEPARTMENT OF THE EAST,
OFFICE CHIEF QUARTERMASTER,
New York City, October 28, 1872.

[Circular.]

The attention of officers and agents in charge of public animals belonging to the Quartermaster's Department in the Department of the East is called to the "epizootic catarrh" now prevalent among horses. They are directed to observe the following rules for the treatment of this disease, and to report results to this office at the end of the present month, and every ten days thereafter, until the disease disappears.

It is assumed that the stables are always kept clean, dry, and well ventilated, with plenty of fresh air and sunlight, when possible. It is also assumed that the horses are never overworked, but properly exercised at all times, whether sick or well, and that they are fed with wholesome forage, regularly groomed, and kept warm.

RUFUS INGALLS,
Col. and Asst. Q. Gen., Bvt. Maj. Gen., U. S. A., Chief Quartermaster.

Rules for the treatment of the disease.

On the first appearance of the disease give the horse a thorough steaming with hot-boiled oats, placed in a bag, and so fastened to the head that the steam from the oats will be inhaled. Repeat this until the discharge from the nostrils is free and of a natural color. Then take leather, or, what is better, carbolic disinfectant, in grains like large-sized cannon-powder, place it in a shallow pan, and burn it where the horse will be obliged to breathe it.

If the throat is sore, (which generally will be the case,) apply frequently hot vinegar, rubbing it well with the hand, and wrap the throat in flannel, dipped in vinegar. Sponge out the nostrils frequently with warm vinegar. Blanket well, night and day, but not enough to produce sweating, and give plenty of fresh, clean bedding.

Give several bran mashes, with from one-half to one ounce of powdered niter in each, and use linseed-meal or flax-seed in the oats. Use tepid water in the mash.

The hay and oats should be moistened with water—preferably tar-water.

Most cases if taken in time will yield to the above treatment; but should the attack be very severe, accompanied with considerable fever, and very sore throat, instead of the vinegar, an embrocation of equal parts of linseed-oil, turpentine, tincture of cantharides, and hartshorn should be rubbed in night and morning.

Powell's embrocation is very good.

Give as a drench, night and morning, the following:

Spirits of nitric ether	1 ounce.
Laudanum	4 drams.
Nitrate of potassa	3 drams.
Water	1 pint.

Mix.

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Should the horse refuse his feed, offer him frequently thin gruel, with a handful of pulverized slippery-elm bark, and licorice-root stirred in it.

When convalescing, exercise gently daily, and stimulate the appetite with the following ball:

Extract of gentian ..... 6 drams.
Powdered ginger ..... 2 drams.
Mix.

A handful of wood-ashes mixed with a little salt, thrown into the feed-trough for the horse to lick up, will be relished by him and be beneficial.

At a later date the Secretary of War communicated to this office the following simple prescription, with directions to communicate it to all officers of the Army in charge of public animals:

One teaspoonful of chlorate of potash twice a day to four horses, put in a pail of water, and let each horse drink his proportion.

These two prescriptions were thus made known. The losses by death from the disease were very small, but the operations of supply were everywhere delayed and deranged as long as the disease prevailed. It was very hurtful, during its prevalence, among the animals employed in hauling supplies to the troops operating against the Modocs, and for a time it dismounted the cavalry in that campaign, as also in Arizona.

THE YELLOWSTONE EXPEDITIONS.

In the summer of 1872 an expedition left the Missouri River to escort a party of engineers to explore a line for the Northern Pacific Railroad to the valley of the Yellowstone. This march showed that the wagon-trains, composed of wagons purchased during the war, had outlived their usefulness, and for the larger expedition organized in the month of June of the present year, it was necessary to procure a large number of new wagons and many mules. One hundred and fifty new wagons were supplied, which, with about fifty reported to be good and available in Dakota, completed the train; 1,058 mules were purchased and forwarded to Fort Abercrombie, where the mules were broken, organized into trains, fitted with harness, and supplied with teamsters, under the direction of Captain Dandy, assistant quartermaster, during the months of April and May. This train consisted of two hundred and two 6-mule teams and wagons, nine spring-wagons, with four mules each, two 6-mule artillery teams, and twelve riding mules for the wagon-masters.

One 6-mule wagon and one 4-mule spring-wagon and their teams, and nine saddle-horses, were also supplied for the use of the scientific commission, which, under authority of the Secretary of War, accompanied the expedition into this wild country.

The organization of this train was a laborious and difficult work, and its completion in so short a time is creditable to the officer in charge.

The following is an extract from the annual report of Capt. G. B. Dandy, assistant quartermaster, Fort Abraham Lincoln, Dak., who organized the trains:

On the 21st of April I received instructions from the chief quartermaster of the department relative to organizing army-wagons for service with the proposed Yellowstone surveying expedition. I was at that time in charge of the depot of transportation at Fort Abercrombie, consisting of three hundred and sixty-five mules and seventy wagons, which was further increased by the addition of ten hundred and seventy-five mules and one hundred and sixty wagons to be organized and added to the depot-train.

On the 27th April the mules and wagons, with the necessary harness for fitting out one hundred and fifty 6-mule teams for service with the exploring and surveying party of the Northern Pacific Railroad west of the Missouri River, commenced arriving at

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Breckenridge, Minn., fifteen miles from Fort Abercrombie. The last shipment of animals and material arrived on the 26th of May. The teamsters were hired in Saint Paul, with the exception of fifty hired on my recommendation at Fort Leavenworth, Kans. These latter were the only men sent me having any experience in the management of 6-mule teams, and many of the men employed at Saint Paul were vicious or worthless characters. About 25 per centum of the mules sent to me from Saint Louis were very wild, and required throwing or placing in the stocks to shoe. Many had to be thrown in order to harness them; and there were many other difficulties in the way of organizing this mass of raw men and material for efficient service in so short a time. The train, however, was completely shod and equipped and *en route* to the Yellowstone on the 29th May. It consisted of two hundred and two 6-mule teams, nine 4-mule teams for spring-wagons, two 6-mule teams for artillery, and some 12 riding-mules for wagon-masters. In addition, there were one 6-mule team, one 4-mule spring-wagon and team, and nine riding-horses provided for the use of the scientific party accompanying the expedition. Special attention was paid to fitting the train amply with spare parts, and blacksmiths', saddlers', and wheelwrights' supplies.

MODOC CAMPAIGN.

Summary of expenditures, indebtedness, &c.

Disbursements as reported by Captain Hoyt	$120,881 20
Ascertained indebtedness, as reported by Captain Hoyt	70,990 03
Transportation of 754,257 pounds from San Francisco, at 15 cents	113,138 55
Grain from Camp Halleck, consumed, cost at camp Halleck	5,000 00
Transportation of grain from Camp Halleck, consumed, rough estimate	25,000 00
	335,009 78

Items of expenditure not yet definitely reported to this office:

Cost of stores in San Francisco.

Cost of transportation of ordnance stores, &c., from Benicia arsenal; weight unknown.

Cost of transportation to Fort Klamath of over 200,000 pounds of grain and other supplies and stores remaining at the close of the campaign.

BARRACKS AND QUARTERS—MILITARY BUILDINGS.

During the year the construction of one hundred and twenty new buildings has been authorized, at an estimated cost of $245,544.87.

They are barracks for men, quarters for officers, stables, store-houses, guard-houses, bake-houses, &c. They are at military posts distributed through the following States and Territories: California, Louisiana, Florida, Michigan, South Carolina, North Carolina, Tennessee, Texas, Kansas, New York, Maryland, Oregon, Nevada, Kentucky, Georgia, Nebraska, Pennsylvania, Minnesota, Maine, Iowa, Connecticut, Virginia, Dakota, New Mexico, Montana, Washington, Arizona, Utah, Colorado, the Indian Territory, and the District of Columbia.

WHARVES.

The expenditure of $18,111.32 in repair and construction of wharves at various posts has been authorized.

REPAIRS.

Upon special estimates submitted to the Secretary of War, repair and alterations of military buildings to the amount of $228,796.49 have been authorized. Many small repairs, making in the aggregate a large sum, were also made under authority of local commanders, without special reference to the War Department for authority.

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NEW POSTS ESTABLISHED.

The construction of two new posts in Arizona has been authorized—one near Tucson and one near the mouth of the San Carlos River. These posts are designed for garrisons of four companies each.

The orders of the Secretary required the labor of the troops to be employed when possible, and limited the expenditure upon the two posts to $35,000.

The post near Tucson is Camp Lowell; that on the San Carlos is New Camp Grant, and they take the places of Tucson Depot and Old Camp Grant, which latter was in a very unhealthy, malarious location.

Erection of huts for one company of infantry at Otter Crossing, on the line of the Northern Pacific Railroad, was authorized in October, 1872.

A post known at first as Fort Cross, now named Fort Seward, has been erected on the James River, Dak., on the line of the same railroad.

Fort Abraham Lincoln has also been built at the Missouri crossing of the railrod.

New posts have been commenced at Tulerosa, N. Mex., and at Beaver City, Utah.

New buildings, alterations, repairs, or additions have been authorized at posts in—

The Department of California, to cost	$48,640 96
The Department of Texas, to cost	44,143 19
The Department of the East to cost	75,207 27
The Department of the South, to cost	15,810 79
The Department of the Platte, to cost	51,012 51
The Department of the Gulf, to cost	42,360 66
The Department of the Columbia, to cost	9,490 00
The Department of Arizona, to cost	62,707 30
The Department of the Missouri, to cost	151,795 04
The Department of Dakota, to cost	78,120 96
The Department of the Lakes, to cost	839 00
Total	580,127 68

Of this sum, however, construction, repairs, &c., to the amount of $122,060, though authorized during the fiscal year, were ordered to be deferred until, after the 1st July of the present year, the new appropriation became available. The works, though needed, could not be executed with the appropriation of the past year.

FIRE-PROOF BUILDING AT JEFFERSONVILLE.

This building has been occupied. The stores, heretofore in wooden buildings scattered over a large space, in constant danger of fire and depredations, involving heavy expense for protection against both these dangers, have been all removed to the new building, properly classed and arranged for easy access, and safe against damp and fire.

An elevated reservoir, kept by a steam-pump constantly filled with water from a pool within the depot, affords the means, through pipes and hose, of instantly subduing any fire occasioned by incendiary attempts or by spontaneous combustion.

A single watchman in the tower has constantly in view the door of every store-room. The cost of watching and guarding the property is thus greatly reduced.

The old buildings have been demolished and the materials sold.

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DEPOT BUILDINGS AT SAN ANTONIO.

In the act of 3d March, 1873, (sundry civil appropriation bill,) is an appropriation of $100,000 for erection of depot buildings at San Antonio, including shops, offices, and commissary and quartermaster storehouses, upon grounds presented to the United States by the city of San Antonio.

Under the instructions of the Secretary of War none of this appropriation has been drawn from the Treasury or expended.

The construction of this depot will be of great advantage to the military service, which now pays a rent bill of over $20,000 for various buildings for military purposes in the city of San Antonio.

HOSPITAL BUILDINGS.

The expenditures authorized for the repair and construction of hospitals have been as follows:

Fort Abercrombie, Dak	$82 24
Angel Island, Cal	190 00
Fort Barrancas, Fla	1,163 00
Fort Brady, Mich	350 00
Baton Rouge, La	4,689 50
Beale's Springs, Ariz	4,500 00
Camp Bidwell, Cal	400 00
Camp Baker, Cal	306 30
Fort Boise, Idaho	843 83
Fort Concho, Tex	1,800 00
Cheyenne Agency, Dak	500 00
Fort Duncan, Tex	2,500 00
Fort Ellis, Mont	300 00
Fort Foote, Md	215 17
Fort Gratiot, Mich	701 85
Fort Gibson, Ind. T	136 80
Fort Hamilton, New York Harbor	580 00
Fort Hays, Kans	2,000 00
Jackson, Miss	550 00
Jackson Barracks, La	1,157 50
Key West, Fla	4,490 10
Lower Brule Agency, Dak	420 00
Little Rock, Ark	1,192 40
Fort Laramie, Kans	189 14
Fort Leavenworth, Kans	580 00
Fort Laramie, Wyo	8,000 00
Fort Lyon, Colo	150 00
Fort McHenry, Md	250 00
Fort Mackinac, Mich	30 00
Camp Mojave, Ariz	4,000 00
McPherson Barracks, Ga	200 00
Fort Monroe, Va	250 00
Fort McIntosh, Tex	198 50
Fort Niagara, N. Y	150 00
Newport Barracks, Ky	7,000 00
Omaha Barracks, Nebr	205 37
Fort Porter, N. Y	481 00
Presidio, Cal	1,226 75
Fort D. A. Russell, Wyo	600 00
Fort Ripley, Minn	1,000 00
Fort Riley, Kans	134 00
Camp Supply, Ind. T	4,824 00
Fort Snelling, Minn	550 50
Fort Sullivan, Me	246 00
Savannah, Ga	1,870 00
Fort Sully, Dak	748 00
Fort Seward, Dak	4,000 00
Fort Selden, N. Mex	200 00

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Fort Shaw, Mont	$350 00
Fort Sanders, Wyo	350 00
Thomas Barracks, Ala	500 00
Fort Union, N. Mex	1,370 09
Fort Wadsworth, New York Harbor	146 00
Fort Wingate, N. Mex	3,818 16
Fort Wayne, Mich	1,793 50
Fort Wood, New York Harbor	75 00
Yerba Buena Island, Cal	1,200 00
Fort Yuma, Cal	2,000 00
Total	77,754 70

BUILDINGS TRANSFERRED FROM THE QUARTERMASTER'S DEPARTMENT.

Seven buildings at Clark's Point, Me., and thirteen at Fort Washington, Md., have been transferred to the Engineer Department, and the State arsenal at Savannah, Ga., held by the United States since the occupation of that city by the army of General Sherman, has been given up to the State.

GROUNDS SURRENDERED, SOLD, ETC.

Under the act of 25th February, 1873, the land at Wilmington, Cal., occupied by the United States, was ordered to be reconveyed to those who had originally conveyed it to the United States; the buildings thereon erected by the United States being first removed or sold. The buildings have been sold at public auction, and the land will be duly restored to its original owners.

Application has been made for the restoration to the donors of certain lands at Omaha, originally conveyed to the United States in consideration of the sum of $10, for the purpose of erection thereon of headquarters' offices and quarters for the department staff. The site is not a convenient one for the purpose, and the matter of reconveyance is before the Secretary of War.

The barracks at Houlton being no longer in use the buildings were sold at public auction, and Congress, by act of March 14, 1872, authorized the Secretary of War to sell the site, reserving to the county of Aroostook so much thereof as may be necessary to preserve the meridian monuments thereon erected by consent of the War Department: *Provided*, The land so granted to the county shall not exceed in value $500. The land not thus reserved, amounting to nearly 25 acres, was duly sold at auction, on 19th June, 1873, for the sum of $350. A deed to convey the portion reserved, whose value is much less than $500, is before the War Department for execution.

The act (17 Stat., p. 614) for procuring title to sites of military posts in Texas, approved 3d March, 1873, has not yet enabled the Department to perfect any title. A board of officers is now in session in Texas for the purpose of endeavoring to execute the law. This office has furnished the board with copies of all records bearing upon the subject which can be useful to them.

ARTESIAN WELLS.

An artesian well sunk at Madison Barracks, N. Y., under authority given in October, 1870, is a success. It affords an unfailing supply of good water. Its depth is 99 feet; the cost was $550. Two more are needed, and their construction has been authorized.

By the law of June 8, 1872, the Secretary of War was authorized

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expend $10,000, or so much thereof as might be necessary, in boring for water at Fort D. A. Russell, near Cheyenne Depot, Wyoming. The site of this post is on the dry plains, at the base of the Rocky Mountains, 6,000 feet above the sea-level.

As no one could be found willing to contract to sink a well to water in this unexplored soil, the tools were purchased by the United States, and a skillful and experienced person was employed to direct the operation. After boring to a depth of 410 feet through drift, the first well was abandoned, having caved in and injured its tubing to such a degree that it was considered cheaper to begin a new well than to attempt to sink the first deeper. The expenditure to the time this first well was abandoned was $8,195.38.

The new well has been sunk through the same strata to a depth of 717 feet, and the expense has amounted to $6,164.62. The last 152 feet of this well are in impervious strata of clay, and as there is a large extent of country within forty miles rising to a height of 2,000 feet above the site of the well, there is good ground for the hope that beneath these strata, impervious to water, a gravel or fissured rock, saturated with water, may be found.

The exploration will be of value, if successful, by showing that water can be obtained; and if unsuccessful, by preventing others from throwing away money in future. I have, therefore, advised that it be continued until the stratum is pierced, or until the difficulties of penetrating deeper become insuperable.

The expenditure thus far has been $14,360; but the cost per foot of the second well has been much less than that of the first. This is due to the knowledge gained in the first boring. Boring began on the 27th of November, 1872. On the 16th of May, 1873, at a depth of 410 feet, this well was abandoned. Expenditure to this date, $8,195.38. Second well begun on the 22d of March, 1873, and the following are the results:

Strata.	Depth of each stratum.	Total depth.	Date.
	Feet.	*Feet.*	
Gravel, clay, and sand	75	75	Mar. 31, 1873
Soapstone	20	95	April 1, 1873
Soapstone and mixture of fine gravel	65	160	April 4, 1873
Gravel and mixture of clay	50	210	April 5, 1873
Red shale	190	400	April 8, 1873
Red shale, with gravel and indurated clay	20	420	April 10, 1873
Granite	10	430	April 12, 1873
Soapstone	20	450	April 13, 1873
Soapstone, very soft	62	512	April 15, 1873
Gravel and quicksand	28	540	June 13, 1873
White indurated clay	18	558	June 30, 1873
Quicksand	7	565	Aug. 5, 1873
White indurated clay	15	580	Aug. 15, 1873
White indurated clay, a little harder	35	615	Aug. 19, 1873
White indurated clay, a little harder	52	667	Aug. 21, 1873
Blue clay	3	670	Aug. 21, 1873
Clay, black, with indications of coal	5	675	Aug. 23, 1873
Blue clay	18	693	Sept. 9, 1873
Clay	7	700	Sept. 13, 1873
Blue clay	17	717	Sept. 15, 1873

The sum of $14,360 has thus far been granted for artesian wells at this post. On September 6, 1873, it was reported that $13,000 had been expended. It is, therefore, reasonable to suppose that the balance of the funds ($1,360) has been, or was very nearly, exhausted by September 15, 1873; which would make the cost of the second well thus far $6,164.62.

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POSTS ABANDONED.

During the year the posts of Taylor Barracks, Ky.; Old Camps G and Lowell, and Crittenden, Ariz.; and Fort Phœnix, Mass., have abandoned.

FIRES.

Some 5,000 buildings are under the care of this Department. M them are of rude and temporary construction, and very liable to fi Seven fires at military posts have been reported during the Such provision to contend against fires as it is possible to make a military posts has been made. The fire-extinguisher, which by a of sulphuric acid on a solution of bi-carbonate of soda in a close v throws a small stream of water some forty feet, has been extens distributed, and has saved a great quantity of property at mili posts. A small, portable hand force-pump, known as Johnson's, lately been tried in this city with such satisfactory results that it been adopted as a part of the fire-apparatus to be supplied to mili posts.

MILITARY RESERVES.

Seven military reserves have been declared by the Executive du the year: Fort Whipple, Va., 26th July, 1872; Camp Harney, O 2d December, 1872; Sibley Island, Dak., 11th February, 1873; Abraham Lincoln, 11th February, 1873; Fort Boise, Idaho, 9th A 1873; Beaver City, Utah, 12th May, 1873, and a reserve of timber for military purposes in Arizona, 20th June, 1873.

PUBLICATIONS.

A list of military posts, with short descriptions of the buildings, situation, and the resources of the vicinity, has been published and tributed.

A short tract on construction in pisé and in concrete, the for extracted from Cresy's Dictionary of Civil Engineering, the latter nished by the acting assistant quartermaster at Sidney Barracks, been also published and distributed. Both of these methods of build are better than adobe, and there are few locations in which the skilled labor of a garrison will not be sufficient to erect all necess walls of the quarters, store-houses, and stables in one of these sty with very little expense, if directed by intelligent officers.

The appropriation for barracks and quarters did not prove suffici to meet the urgent demands made upon it, and toward the close of fiscal year all new construction and repairs were arrested by orde the Secretary of War for want of funds. Still the rents and regu expenses which it was not possible to terminate have exceeded amount available and given rise to a deficiency estimate.

POST CEMETERIES.

As the wilderness is settled, the military posts on the old emigra routes are abandoned. At those occupied for many years are ce teries containing the graves of soldiers who fell in protecting the e grant from the savage, and the graves also of pioneers who lost th lives in settling the wilderness.

As the cost of properly and permanently inclosing these cemeter in some positions is very great, arrangements have been made to remo

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the bodies. Those at old Fort Kearney and Sedgwick are to be removed to Fort McPherson, where they will be re-interred, and a permanent cemetery will be inclosed.

We have reports from 113 post cemeteries, which will be duly recorded and preserved.

NATIONAL MILITARY CEMETERIES.

The number of interments in the national military cemeteries by last year's report was 317,962. One hundred and forty-eight Union soldiers have been added to the list during the year. None have been removed. The number of the known is 170,187; unknown, 147,823.

A new national cemetery is being established at Fort McPherson, Nebr., to which the bodies of those who have fallen in the Indian fights of that frontier and been buried at neighboring posts, abandoned with the progress of settlement, are to be removed.

The cemetery established on the occupation of the city of Mexico by the Army of the United States has, under a law approved on 3d March, 1873, been designated a national military cemetery, and placed under the guardianship of the Secretary of War and subjected to the laws regulating other national military cemeteries. Reports and estimates of necessary improvements have been received from the consul-general of the United States, and their execution, approved by the Secretary of War, has been commenced. One of them is the sinking of an artesian well to supply water for irrigation, necessary in that dry and elevated position.

During the year brick-inclosing walls have been completed or are now building at the cemeteries of Newbern and Raleigh, N. C., Beaufort and Florence, S. C., and Memphis, Tenn.; stone walls at Danville, Glendale, Seven Pines, and Staunton, Va., at Salisbury, N. C., and Forts Leavenworth and Scott, Kans.

Superintendents' lodges have been completed during the year or are being erected at Danville, Glendale, and Seven Pines, Va., at Raleigh and Wilmington, N. C., Camp Nelson, Logan's Cross-Roads, and Lebanon, Ky., Memphis, Chattanooga, Fort Donelson, and Knoxville, Tenn., and at Fort Smith, Ark.

There remain to be provided for permanent inclosures at Andersonville, Ga., Fort Gibson, Indian Ter., Grafton, W. Va., and Fort McPherson, Nebr., and permanent lodges at Grafton, W. Va., Beverly, N. J., and Fort McPherson, Nebr.

The superintendents employed at the several cemeteries have had the aid of more labor during the past year, and an improvement in the keeping of the cemeteries is reported. The work of drainage is being prosecuted at those where it is most needed, as rapidly as the means allowed by Congress will justify.

A handsome stone gateway has been built at the Nashville cemetery, on the same design as that at Arlington, but of a local limestone of a different color.

Four civil engineers have been employed and stationed at central points in order to superintend the work of contractors upon permanent inclosures, and lodges and drainage, and to lay out such works.

HEAD-STONES.

The law of 3d March, 1873, (chapter 229, section 1, 17 Statutes,) appropriates $1,000,000 for erection of head-stones on certain conditions.

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Advertisements and specifications, copies of which accompany this report, have been published. The Secretary had decided that the head-stones should be of white marble or granite, four inches thick, and of widths and lengths described in the specifications herewith.

The list of graves requiring head-stones does not embrace those not in separate national military cemeteries, nor the unknown at Salisbury, for which cemetery a special provision of law directs a single monument of granite to be erected. The difference in the printed list from the number herein reported is due to the omission of 12,112 at Salisbury, and of those buried in lots in city and village cemeteries not known as national.

On the 6th September, 1873, eighty bids, received in response to the advertisements, were opened in this office. The prices varied greatly, as did the material offered; but fourteen bids, understood to agree substantially with the specifications, appeared to come within the total sum of $1,000,000, to which the cost is limited by law.

All are still before the Secretary of War for award under the law. No decision has as yet been communicated to this office.

CLAIMS FOR QUARTERMASTER'S STORES, UNDER THE ACT OF 4TH JULY, 1864.

On 1st July, 1872, there were on file in this office 10,351 claims under this act, amounting to $6,857,006.56. One thousand nine hundred and sixty-three were filed during the year, amounting to $2,024,725.16. Total on file, 12,314, for $8,881,731.72.

Six hundred and forty-two have been reported to the Third Auditor for settlement during the year. Amount claimed, $615,212.42. The amount allowed on these is $296,775.90; less than 50 per cent. Three hundred and twenty-five have been rejected; amount, $443,689.75. Total disposed of, 967 claims, amounting to $1,058,902.17, upon which $296,775.90 only has been proved to be just and allowable under the law. At the same rate the 11,347 claims yet on file will be probably settled for about one-third of their face, and of the $7,822,829.55 which they claim, it is probable that about $2,600,000 will be proved to be justly due.

For detailed information in regard to several other classes of claims which come under the cognizance of the Quartermaster General, reference is made to the report of the assistant, Major Ludington, in charge of that part of this office.

Various tables and abstracts also accompany this report, which give information in the business of this office important to preserve for future reference.

CLOTHING AND EQUIPAGE.

The President of the United States having adopted a new uniform for the Army, its manufacture was begun by this office. But the appropriation made before the change of uniform, and based upon estimates looking to the use of material in store, was not sufficient to provide uniforms of the new pattern for 30,000 men. The manufacture and distribution were therefore arrested until, on the 1st of July, 1873, the appropriation of the present fiscal year became available. Nearly all the troops have now received the new uniform. The old-pattern clothing stored in the Philadelphia depot has, in compliance with the law, been sold at public auction, the sales amounting to $490,094.31. The surplus

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of such clothing distributed at military posts throughout the country is being reported for sale as fast as the new uniform takes its place.

The sale of a large quantity of clothing stored at the Western or Jeffersonville depot, on the Ohio, is deferred until next season.

A great improvement in the shoes and boots of the Army has been made by the introduction of those whose sole is attached to the upper-leather by screws of brass wire. Reports are almost unanimous to the effect that these boots and shoes last longer, and are a better protection to the feet, than the sewed or pegged boots heretofore used.

Nearly all military posts have been supplied with single bedsteads; the head and foot trestles are of iron, supporting slats of wood, easily removable. They are much liked, are easily kept free from vermin, can be stacked in piles during the day so as to give room for circulation on the floors of the barrack-room, while at night they enable the men to sleep singly and thus put an end to much discomfort, unavoidable with the two and three story wooden bunks so long used in barracks.

MOTH AND MILDEW PROOFING—PROCESS OF GEORGE A. COWLES & CO.

The sum of $350,000, appropriated for the purpose by Congress, has been expended in treating the woolen and cotton material in store, according to the above process, in order to render it proof against moth and mildew. To complete its application to all material which will need it during the next fiscal year will require the sum of $100,000, for which an estimate has been submitted.

The appropriation for clothing and equipage for the past fiscal year was $900,000. The expenditures by this office were $858,412.07.

Forty-one thousand nine hundred and fifty-three dollars and thirty-three cents were transferred, by order of the Secretary of War, to the Ordnance Department, to which the manufacture and supply of knapsacks and haversacks has been transferred.

Four hundred and fifty-six thousand nine hundred and eighty-six dollars and eighty-two cents were received during the year from sales of clothing, including $18,832.56 derived from sales of clothing and material to officers for their personal use.

The National Asylum for Disabled Volunteers was entitled under the law to a large quantity of the old-pattern clothing. The president of the asylum obtained the authority of the Secretary of War to draw the equivalent of this clothing in shoes. One hundred and fifty-one thousand two hundred and forty-nine pairs of pegged shoes were delivered to the asylum from the stock in depot.

The clothing returns of officers of the Army are promptly examined and settled as received.

Full statements of the operations of the clothing and equipage branch of this office will be found at the close of this report, attached to the report of Major Bingham, quartermaster, on duty in this office during the year.

EXPLORING EXPEDITIONS.

The party under command of Lieutenant Wheeler, of the Corps of Engineers, engaged in the exploration of the territory west of the one hundredth meridian, has been supplied with animals, wagons, and forage, for transportation of escort, of supplies, and of its collections. Such quartermasters' stores as are needed by the civilians employed upon this expedition are sold to them at cost price.

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The geologic and geographic exploration of Professor F. V. Hayden, United States geologist, has also been aided, under special authority of the Secretary of War, by sale of partially unserviceable animals and equipments.

The expedition for marking the boundary between the United States and Canada, west of the Lake of the Woods, under the charge of Commissioner Archibald Campbell, has also received aid and assistance from the Quartermaster's Department as heretofore.

During the month of November, 1872, under the order of the Secretary of War, I passed over the transportation routes from the East to the western end of Lake Superior and to the Red River of the North, at Fargo, the crossing of the Northern Pacific Railroad, and at Breckenridge, the terminus of the Saint Paul and Pacific Railroad. I had also intended to visit the depot of military transportation service on the Missouri River, then at Sioux City, as well as the crossing of the Missouri by the North Pacific, at Fort Abraham Lincoln; but I found the roads southwest of Saint Paul and west of the Red River blocked with snow and the routes impassable. I proceeded by the Kansas Pacific Railroad to Denver and to Cheyenne, and thence returned to this city. The extension of these roads greatly aids this department in its operations; but as the troops are moved further to the west and occupy posts within the mountain ranges, the total cost of transportation is not reduced. The field of operations is changed, but remains as extensive and as costly as before.

The officers who have been on duty in this office during the fiscal year are: Col. Robert Allen, who was on duty here during the whole of the preceding fiscal year, and was ordered, on the 11th March, 1873, to the headquarters Military Division of the Pacific, at San Francisco, where, since March 22, 1873, he has been on duty as chief quartermaster of that division.

Maj. J. D. Bingham has taken charge of those branches of the office (finance and inspection) vacated by this assignment of Colonel Allen, in addition to his former duties, except those of the cemeterial branch, to which, since June 25, 1873, Capt. A. J. McGonnigle has been assigned.

Maj. M. I. Ludington has continued on duty in this office.

All these officers have shown their usual zeal and intelligence in the performance of their respective duties, and their assistance has been very valuable.

The other principal stations of the Quartermaster's Department, during the fiscal year, have been filled as follows, viz:

Col. Robert Allen, assistant quartmaster general, chief quartermaster Military Division of the Pacific, at San Francisco, from March 22, 1873.

Col. D. H. Rucker, assistant quartermaster general, chief quartermaster Military Division of the Missouri, Chicago, Ill.

Col. Rufus Ingalls, assistant quartermaster general, chief quartermaster Department of the East, in charge of the general depot of the Quartermaster's Department at New York City, and, from 25th November, 1872, also chief quartermaster Military Division of the Atlantic.

Col. L. C. Easton, assistant quartermaster general, chief quartermaster Military Division of the Atlantic to 25th November, 1872, and in charge of the Philadelphia depot of the Quartermaster's Department—the principal depot of clothing and equipage of the Army—throughout the year.

Col. Stewart Van Vliet, assistant quartermaster general, from Oct

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ber 18, 1872, chief quartermaster Military Department of the Missouri, at Fort Leavenworth.

Lieut. Col. S. B. Holabird, chief quartermaster Department of Texas.

Lieut. Col. James A. Ekin, chief quartermaster Department of the South; also, from September 26, 1872, in charge of the Jeffersonville depot of the Quartermaster's Department, and, from December 11, 1872, chief quartermaster Military Division of the South.

Lieut. Col. A. R. Eddy, on duty at the Philadelphia depot to August 17, 1872; from August 27 and 28, 1872, depot quartermaster at San Francisco, chief quartermaster Department of California, and chief quartermaster Military Division of the Pacific, of which last duty relieved by Col. Robert Allen on March 22, 1873.

Lieut. Col. Rufus Saxton, to May 28–31, 1873, chief quartermaster Department of the Columbia, at Portland, Oreg.; from June 23, 1873, chief quartermaster Department of the Lakes, at Detroit, Mich.

Maj. A. J. Perry, chief quartermaster Department of the Platte, Omaha, Nebr.

Maj. J. G. Chandler, in charge of depot at Fort Leavenworth, and, from July 1 to October 18, 1872, acting chief quartermaster Department of the Missouri.

Maj. C. G. Sawtelle, to July 15, 1872, chief quartermaster Department of California, and depot quartermaster at San Francisco; from August 15, 1872, to close of the fiscal year, assistant to the depot quartermaster at Philadelphia, and chief quartermaster third quartermaster's district Department of the East.

Maj. J. J. Dana, chief quartermaster Department of Arizona, at Prescott.

Maj. James M. Moore, from September 1, 1872, depot quartermaster at Cheyenne.

Maj. William Myers, in charge of depot, at Washington, D. C.

Maj. B. C. Card, to April 18, 1873, depot quartermaster at San Antonio; from May 1, 1873, chief quartermaster Department of Dakota, at Saint Paul.

Capt. E. B. Grimes, depot quartermaster at Saint Louis.

Capt. A. F. Rockwell, in charge of depot at Yuma, on the Colorado, Ariz., relieved Capt. J. G. C. Lee, who had completed a full tour of duty in Arizona.

Capt. C. H. Hoyt, in charge of general depot at Jeffersonville, Ind., to September 26, 1872, and of construction of buildings to November 21, 1872. From December 23, 1872, disbursing officer District of the Lakes, at Camp Warner, Oregon; from February 26, 1873, to close of the fiscal year, chief quartermaster of the Modoc expedition.

Capt. John F. Rodgers, military store-keeper at Jeffersonville, Ind., to April 8, 1873; from December 21, 1872, he was also on duty at the Philadelphia clothing depot, so remaining to the close of the year.

These officers have administered the offices of the Government committed to their charge with ability and zeal.

One assistant quartermaster, Capt. Henry Inman, was cashiered on July 24, 1872; one military store-keeper, Capt. N. D. A. Sawyer, was cashiered on November 30, 1872; and another, Capt. G. H. A. Dimpfel, was wholly retired on August 16, 1872.

Lieut. Col. C. H. Tompkins was suspended by sentence of a court-martial for one year from the 4th January, 1873.

The work of the Department, extending over the whole territory of the United States, has been satisfactorily conducted by the officers of

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its establishment, aided by about three hundred subalterns from the line as acting assistant quartermasters.

The personal annual reports received from these officers among the records of the Department. They contain much information in relation to the wants and supplies of the ser bear testimony to the intelligence and fidelity of their writers acting assistant quartermasters, upon whom the burden of tl part of the detailed work of issue to troops and of care of pu plies falls in consequence of the insufficient number of office regular establishment, this office is much indebted. I hav elsewhere on the legislation which I believe to be necessary t justice, and to give them assistance much needed in the perfo their laborious and responsible duties.

The principal active operations which have taxed the reso the officers of this Department during the year, have been t tions against the Apaches in Arizona, who have been reduced of comparative quiet; the campaign against the Modocs in and Oregon, finally successful, and the organization and cond trains of the expedition to the Yellowstone, which made a march of seven hundred miles into an uncultivated and in g barren wilderness, and returned without serious loss of mat ing accomplished its purpose.

In connection with this expedition, the Yellowstone River w first time navigated by steamboats, which met the troops at tl ing near Powder River and rendered essential service.

In these important active operations, Lieutenant-Colonel E quartermaster Department of California, and Captain Hoyt, present with the troops in the Modoc campaign, Maj. J. J. D quartermaster Department of Arizona, Maj. B. C. Card, chie master Department of Dakota, and Capt. G. B. Dandy, who organized the Yellowstone train, rendered valuable service.

I have the honor to remain, very respectfully, your obedien

M. C. MEI

Quartermaster General, Bvt. Maj. Gen.,

Hon. W. W. BELKNAP,

Secretary of War.

List of papers accompanying the annual report of the Quartermaster General year ending June 30, 1873.

I. Report of Maj. J. D. Bingham, quartermaster, United States Army, of tl branch of the Quartermaster-General's Office during the fiscal year 30, 1873.

A.—Report of officers on duty in the Quartermaster's Department duri year.

B.—List of line officers on duty as acting assistant quartermasters, an tions at which they have served during the fiscal year.

C.—Report of the stations and duties of officers of the Quartermaster's July 1, 1873.

II. Report of Maj. J. D. Bingham, quartermaster, United States Army, o branch of the Quartermaster General's Office during the fiscal year end 1873.

III. Report of Maj. J. D. Bingham, quartermaster, United States Army, tions of the accounting branch of the Quartermaster General's Office dur year ending June 30, 1873.

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IV. Report of Maj. J. D. Bingham, quartermaster, United States Army, of the operations of the clothing branch of the Quartermaster General's Office during the fiscal year ending June 30, 1873.

Accompanying papers:

A.—Statement showing the quantity of clothing, camp and garrison equipage, and clothing materials in the hands of officers June 30, 1872, the quantity purchased, manufactured, sold, lost, and issued during the fiscal year, and quantity remaining on hand for the supply of the Army on June 30, 1873.

B.—Statement showing expenditure on account of clothing, camp and garrison equipage, during the fiscal year.

C.—Statement of amounts received from sales of surplus serviceable, unserviceable, damaged, and irregular articles of clothing, &c., sold at the principal clothing depots; also of the amounts derived from sales to officers, &c., during the fiscal year.

D.—Statement of the amounts received and expended on account of clothing and equipage during the fiscal year.

E.—Statement of returns of clothing, camp and garrison equipage, received, examined, and transmitted to the Treasury Department, and of letters received and written, during the fiscal year.

F.—Statement showing number of claims received and acted upon, on account of clothing and equipage, during the fiscal year.

V. Report of Maj. M. I. Ludington, quartermaster, United States Army, of the operations of the regular supplies, transportation, and barracks and quarters branch of the Quartermaster General's Office, during the fiscal year ending June 30, 1873.

A.—Statement of the indebtedness of southern rail-road companies for railway material for the fiscal year.

B.—Statement of troops and stores transported during the fiscal year.

C.—Abstracts of contracts for wagon transportation received at the Quartermaster General's Office during the fiscal year.

D.—Abstract of contracts for water transportation entered into by the Quartermaster's Department during the fiscal year.

E.—Statement of vessels chartered, impressed, and employed during the fiscal year.

F.—Statement of vessels owned or purchased by the Quartermaster's Department during the fiscal year.

VI. Report of Capt. A. J. McGonnigle, assistant quartermaster, United States Army, of the operations of the cemeterial branch of the Quartermaster General's Office during the fiscal year ending June 30, 1873.

I.—*Report of Maj. J. D. Bingham, Quartermaster, U. S. A.*

QUARTERMASTER GENERAL'S OFFICE,
Washington, D. C., September 26, 1873.

GENERAL: I have the honor to submit a report of the operations of the inspection branch of this office during the fiscal year ended June 30, 1873.

The duties of this branch continue as specified in previous annual reports, and are principally as follows:

Keeping narrative reports of stations and duties of all officers who perform duty in the Quartermaster's Department.

Examining, and preparing for such action as may be requisite, proceedings of boards of survey, inventory and inspection reports, communications on assignments of officers and distribution of employés, and annual reports of officers.

Filing and distribution of orders, circulars, rolls of honor, and other printed documents.

Preparing monthly returns of officers of the Quartermaster's Department for the Adjutant-General's Office.

Keeping books of "letters received" and "letters sent" relating individually to officers, agents, and employés of the Department.

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The following is an approximate statement of the number circulars, and books received and distributed during the fisca

	Received
General Orders, Quartermaster-General's Office	.....
General Orders, Adjutant-General's Office	116,900
General Court-martial Orders, Adjutant-General's Office	36,000
General Orders, Headquarters of the Army	4,200
Circulars	10,200
Roll of honor	2,000
Hints on horse-shoeing	.....
Regulations of the Quartermaster's Department	500
Miscellaneous	2,400

During the same period about 1,200 inventory and inspecti and 132 proceedings of boards of survey have been examined necessary, acted upon; 4,506 entries have been made in th "letters received," and 767 letters written and indorseme which are recorded in the corresponding book of "letters sen a much larger number recorded in books kept in other branc office.

I respectfully inclose herewith lists of officers on duty in th master's Department during the fiscal year.

Very respectfully, your obedient servant,

J. D. BINGH

Quartermaster, Bvt. Brig. Gen.,

The QUARTERMASTER GENERAL, U. S. A.

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No.	Name and grade.	Rank.	Duties, &c.
	QUARTERMASTER-GENERAL.		
1	Montgomery C. Meigs	Brigadier-general and brevet major-general	In charge of the Quartermaster's Department at Washington, D. C.; from November 4 to December 4, 1872, absent on tour of inspection West and Northwest.
	ASSISTANT QUARTERMASTERS-GENERAL.		
1	Robert Allen	Colonel and brevet major-general	To March 10, 1873, on duty in the Quartermaster-General's Office, Washington, D. C.; thenceforward *en route* to the chief quartermaster Military Division of the Pacific at San Francisco, Cal.
2	Daniel H. Rucker	Colonel and brevet major-general	Chief quartermaster Military Division of the Missouri, and in charge of depot at Chicago, Ill.
3	Rufus Ingalls	Colonel and brevet major-general	Chief quartermaster Department of the East, and in charge of depot at New York City; and from December 30, 1872, chief quartermaster Military Division of the Atlantic.
4	Langdon C. Easton	Colonel and brevet major-general	In charge of Philadelphia depot at the Quartermaster's Department, and to December 30, 1872, chief quartermaster Military Division of the Atlantic at Philadelphia.
5	Stewart Van Vliet	Colonel and brevet major-general	To October 28, 1872, on leave of absence; thence chief quartermaster Department of the Missouri at Fort Leavenworth, Kans.
	DEPUTY QUARTERMASTERS-GENERAL.		
1	Samuel B. Holabird	Lieutenant-colonel and brevet brigadier-general	Chief quartermaster Department of Texas at San Antonio, Texas.
2	Robert O. Tyler	Lieutenant-colonel and brevet major-general	To August 1, 1872, chief quartermaster Military Division of the Pacific; thenceforward on leave of absence.
3	Charles H. Tompkins	Lieutenant-colonel and brevet brigadier-general	To August 11, 1872, chief quartermaster Department of Dakota at Saint Paul, Minn.; thenceforward transferring duties *en route*, under trial by general court-martial in Departments of Arizona and California, and under suspension.
4	James A. Ekin	Lieutenant-colonel and brevet brigadier-general	Chief quartermaster Department of the South at Louisville, Ky.; and from September 26, 1872, in charge of depot at Jeffersonville, Ind.; also, from December 11, 1872, chief quartermaster Military Division of the South at Louisville, Ky.
5	Frederick Myers	Lieutenant-colonel and brevet brigadier-general	Chief quartermaster District of New Mexico at Santa Fé, N. Mex.
6	Alexander Montgomery	Lieutenant-colonel	Chief quartermaster second quartermasters' district Department of the East, Boston, Mass.
7	Treadwell Moore	Lieutenant-colonel and brevet brigadier-general	Post quartermaster at Fort Adams, R. I.
8	Hyatt C. Ransom	Lieutenant-colonel	To August 9, 1872, chief quartermaster District of Montana, and post quartermaster at Fort Shaw; to May 1, 1873, transferring property *en route*, and chief quartermaster Department of Dakota at Saint Paul, Minn.; thenceforward transferring property *en route*, and chief quartermaster Department of the Gulf at New Orleans, La.
9	Asher R. Eddy	Lieutenant-colonel and brevet colonel	To August 17, 1872, chief quartermaster third quartermasters' district Department of the East, at Philadelphia, Pa.; thenceforward transferring property *en route*, and chief quartermaster Department of California, and in charge of depot at San Francisco, Cal.; from August 27, 1872, to March 22, 1873, also acting chief quartermaster Military Division of the Pacific.

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A.—*Annual report of officers of the Quartermaster's Department for the fiscal year ending June* 30, 1873—Continued.

No.	Name and grade.	Rank.	Duties, &c.
10	Rufus Saxton	Lieutenant-colonel and brevet brigadier-general.	To May 22, 1873, chief quartermaster Department of the Columbia at Portland, Oreg.; thenceforward transferring property, *en route*, and chief quartermaster Department of the Lakes, at Detroit, Mich.
	QUARTERMASTERS.		
1	Judson D. Bingham	Major and brevet brigadier-general	On duty in the Quartermaster-General's Office at Washington, D. C.
2	Alexander J. Perry	Major and brevet brigadier-general	Chief quartermaster Department of the Platte at Omaha, Nebr.
3	Henry C. Hodges	Major and brevet lieutenant-colonel	Post quartermaster at Atlanta, Ga.
4	John G. Chandler	Major and brevet colonel	In charge of depot at Fort Leavenworth, Kans.; also, to October 18, 1872, acting chief quartermaster Department of the Missouri.
5	Charles G. Sawtelle	Major and brevet brigadier-general	To August 1, 1872, chief quartermaster Department of California, and in charge of depot at San Francisco, Cal.; thenceforward *en route*, and chief quartermaster third quartermasters' district Department of the East, at Philapelphia.
6	James J. Dana	Major and brevet brigadier-general	Chief quartermaster Department of Arizona, and in charge of Whipple depot at Prescott, Ariz.
7	Joseph A. Potter	Major and brevet brigadier-general	To May 31, 1873, chief quartermaster Department of the Lakes, at Detroit, Mich.; thenceforward *en route* to Louisville, Ky., and on sick-leave.
8	Richard N. Batchelder	Major and brevet colonel	To May 3, 1873, chief quartermaster first quartermasters' district department of the East at New York City; thenceforward *en route*, and chief quartermaster Department of the Columbia, at Portland, Oreg.
9	Marshall I. Ludington	Major and brevet lieutenant-colonel	On duty in the Quartermaster-General's Office at Washington, D. C.
10	James M. Moore	Major and brevet lieutenant-colonel	To August 6, 1872, in charge of office of chief quartermaster Department of the Missouri, transferring property, &c., at Fort Leavenworth, Kans.; thenceforward *en route* to, and in charge of, depot at Cheyenne, Wyo.
11	James Belger	Major	To July 26, 1872, on duty at Galveston, Tex.; to Nov. 18, 1872, *en route* to post quartermaster and transferring property at Fort Gibson, Cherokee Nation; thenceforward *en route* to, and on duty as post quartermaster at, Fort Brown, Tex.
12	William Myers	Major and brevet brigadier-general	In charge of depot at Washington, D. C.
13	Herbert M. Enos	Major and brevet colonel	During the year at Waukesha, Wis.
14	Benjamin C. Card	Major and brevet brigadier-general	To March 31, 1873, in charge of depot at San Antonio, Tex.; to April 30, 1873, transferring property and *en route*; thenceforward chief quartermaster Department of Dakota at Saint Paul, Minn.
	ASSISTANT QUARTERMASTERS.		
1	Charles A. Reynolds	Captain and brevet lieutenant-colonel	To August 20, 1872, in charge of depot at Cheyenne, Wyo.; to October 26, 1872, transferring property, *en route*, and awaiting orders; thenceforward post

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5	William B. Hughes	Captain	To May 31, chief quartermaster Department of the Gulf, and in charge of depot at New Orleans, La.; thenceforward *en route*, post quartermaster and assistant to depot quartermaster at San Francisco, Cal.
6	Augustus G. Robinson	Captain and brevet major	Post quartermaster at Fort Sill, Ind. T.
7	Edward D. Baker	Captain	To September 30, 1872, in charge of depot at Salt Lake City, Utah; to April 22, 1873, in charge of depot at Ogden, Utah; thenceforward *en route*, awaiting orders at Saint Paul, Minn., and chief quartermaster of the Yellowstone expedition in the Department of Dakota.
8	Henry W. James	Captain and brevet lieutenant-colonel	In charge of depot at Fort Vancouver, Wash.
9	Henry Inman	Captain and brevet lieutenant-colonel	At Fort Abercrombie, Dak., settling accounts to July 24, 1872, on which date cashiered.
10	James G. C. Lee	Captain and brevet lieutenant-colonel	To September 29, 1872, in charge of Yuma depot, Ariz.; to December 5, 1872, transferring property and *en route;* to April 5, 1873, settling accounts at Washington, D. C.; thenceforward *en route*, and on duty at Jeffersonville, Ind.
11	James Gillias	Captain	Purchasing and disbursing quartermaster at Chicago, Ill.
12	Theodore J. Eckerson	Captain and brevet major	To October 16, 1872, awaiting orders at Chester, Pa., and Wilmington, Del.; thenceforward *en route* to, and post quartermaster at, Fort Monroe, Va.
13	Andrew J. McGonnigle	Captain and brevet colonel	To May 31, 1873, in charge of depot and post quartermaster at Fort Union, N. Mex.; thenceforward *en route* and on duty in the Quartermaster-General's Office at Washington, D. C.
14	Edward B. Grimes	Captain and brevet major	In charge of depot at Saint Louis, Mo.
15	James W. Scully	Captain and brevet colonel	Post quartermaster at Fort Rice, Dak.
16	William T. Howell	Captain and brevet major	To July 21, 1872, transferring property at Fort Griffin, Tex.; to September 13, 1872, *en route*, awaiting orders, &c.; to April 25, 1872, post quartermaster at Fort Laramie, Wyo.; thenceforward transferring property, *en route* to, and post quartermaster at, Camp Douglas, Utah.
17	Charles W. Foster	Captain and brevet colonel	To April 1, 1873, in charge of depot at Sioux City, Iowa; thenceforward in charge of depot at Yankton, Dak.
18	George W. Bradley	Captain	In charge of depot at Charleston, S. C.
19	Simon F. Barstow	Captain and brevet lieutenant-colonel	To November 7, 1872, on duty as aide-de-camp at headquarters Military Division of the Atlantic at Philadelphia; to May 10, 1873, awaiting orders; thenceforward *en route* to, and post quartermaster at, Raleigh, N. C.
20	John H. Belcher	Captain and brevet major	In charge of depot at Omaha, Neb.
21	Ezra B. Kirk	Captain	To November 26, 1872, post quartermaster at Camp Supply, Ind. T.; thenceforward transferring property, *en route* to, and post quartermaster at, Fort Dodge, Kans.
22	Amos S. Kimball	Captain	Post quartermaster at Fort Riley, Kans.
23	Almon I. Rockwell	Captain and brevet lieutenant-colonel	To July 10, 1872, post quartermaster at Fort Sill, Ind. Ter.; thenceforward transferring property, *en route* to, and in charge of, Yuma depot, Ariz.
24	Gilbert C. Smith	Captain	To May 31, 1873, post quartermaster and assistant to depot quartermaster at San Francisco, Cal.; thenceforward transferring property and *en route* to Fort Union, N. Mex.
25	Thomas B. Hunt	Captain and brevet lieutenant-colonel	To September 24, 1872, awaiting orders at San Antonio, Tex.; thenceforward *en route* to, and post quartermaster at, Fort Cross, afterward Fort Seward, Dak.
26	Edward J. Strang	Captain and brevet lieutenant-colonel	To November 30, 1872, post quartermaster at Fort Brown, Brownsville, Tex.; to March 28, 1873, transferring property, on leave of absence, and on special duty at New Orleans, La.; to April 7, 1873, post quartermaster at Fort Duncan, Tex.; thenceforward *en route* to, and in charge of, forwarding depot at Denison, Tex.
27	Nathaniel S. Constable	Captain	Post quartermaster at Fort Concho, Tex.
28	John V. Furey	Captain	In charge of depot at Tucson, Ariz.; also, from March 1, 1873, post quartermaster at Camp Lowell, Ariz.

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A.—*Annual report of officers of the Quartermaster's Department for the fiscal year ending June* 30, 1873—Continued.

No.	Name and grade.	Rank.	Duties, &c.
29	Lewis Cass Forsyth	Captain and brevet major	Post quartermaster at Fort Ellis, Mont.; and from August 8, 1872, also chief quartermaster District of Montana.
30	Charles H. Hoyt	Captain	To September 26, 1872, in charge of depot at Jeffersonville, Ind., and to November 20, 1872, engaged in the construction of buildings at that depot; thenceforward *en route* to, and post quartermaster and disbursing officer, District of the Lakes, at Camp Warner, Oreg.; from February 26, 1873, to close of the fiscal year absent from his station on duty as chief quartermaster of the Modoc expedition.
31	Asa P. Blunt	Captain and brevet colonel	To August 21 on leave of absence, awaiting orders, and *en route;* to May 20, 1873, post quartermaster at Fort Buford, Dak.; thenceforward transferring property, and on sick-leave.
	MILITARY STORE-KEEPERS.		
1	Reuben M. Potter	Captain	Acting assistant quartermaster at Pittsburgh, Pa.
2	Charles A. Alligood	Captain	To July 7, 1872, acting assistant quartermaster at Baltimore, Md.; to December 21, 1872, on duty at the Philadelphia depot of the Quartermaster's Department; thenceforward transferring property and on leave of absence.
3	John F. Rodgers	Captain	To April 3, 1873, in charge of clothing and equipage at Jeffersonville, Ind., and from December 23, 1872, in charge of clothing and equipage at the Philadelphia depot of the Quartermaster's Department.
4	Gustavus A. Hull	Captain	To October 26, 1872, on duty as acting assistant quartermaster at Fort Sanders, Wyo.; to March 17, 1873, transferring property, *en route* to, and acting assistant quartermaster at, Camp Douglas, Utah; on leave and *en route*, to April 21, 1873; thenceforward acting assistant quartermaster at Ogden, Utah.
5	George H. A. Dimpfel	Captain	Settling accounts at San Francisco, Cal., to August 16, 1872, when wholly retired.
6	Nathan D. A. Sawyer	Captain	To July 31, 1872, acting assistant quartermaster at Victoria, Tex., awaiting orders at Indianola, Tex., and under trial by general court-martial to November 30, 1872, when cashiered.
7	John Livers	Captain	On duty at Fort Leavenworth, Kans.
8	Hamilton Lieber	Captain	On duty at Fort Snelling, Minn.
9	Verplanck Van Antwerp	Captain	On duty as acting assistant quartermaster at Baltimore, Md.
10	Addison Barrett	Captain	To March 15, 1873, on duty at Yerba Buena Island, San Francisco, Cal.; thenceforward *en route* to, and on duty at, Jeffersonville, Ind.
11	William P. Martin	Captain	To February 4, 1873, on duty as acting assistant quartermaster at Columbia, S. C., thenceforward *en route* to, and on duty at, Yerba Buena Island, San Francisco, Cal.

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RECAPITULATION.

Grade.	In service at commencement of fiscal year.	Cashiered.	Wholly retired.	Gained by promotion.	Lost by promotion.	In service at end of fiscal year.
Quartermaster-General, with rank of brigadier-general	1	....	....	....	....	1
Assistant quartermasters-general, with rank of colonel	5	....	....	....	....	5
Deputy quartermasters-general, with rank of lieutenant-colonel	8	....	....	2	....	10
Quartermasters, with rank of major	16	....	....	....	2	14
Assistant quartermasters, with rank of captain	31	1	....	....	....	30
Military store-keepers, with rank of captain	11	1	1	....	....	9
	72	2	1	2	2	69

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B.—*List of officers on duty as acting assistant quartermasters, and of the station they have served, during the fiscal year ending June 30, 1873.*

Name.	Lineal rank and regiment.	Brevet rank.	Stations.	Time during year A. A. Q.
Abbott, A. T	2d lt. 3d Art		Charleston, S. C	Nov. 1 to 30, 1872
Abbott, L. H	1st lt., R. Q. M. 6th Cav.		Camp 6th Cav., near Fort Hays, Kans.	July — to Oct. 3 May 3 to June
Adams, H. H	1st lt. 18th Inf		Chester, S. C	July 1 to Sept. 3
Adams, John Q	1st lt. 1st Cav	Captain	Camp Warner, Oreg	July 1, 1872, to J
Albee, George E	1st lt. 24th Inf		Ringgold Barr'ks, Tex	Sept. 21, 1872, to
Aldrich, Bishop	1st lt., R. Q. M. 8th Inf.		David's Island, New York Harbor.	July 1 to 3, 1872.
Do	do		Ft. D. A. Russell, Wyo	Oct. 15, 1872, to J
Allsworth, Ed	1st lt. 25th Inf		Fort Bliss, Tex	Oct. 1, 1872, to J
Anderson, John	2d lt. 16th Inf		Newberry, S. C	July 1, 1872, to J and Jan. 14 to
Armstrong, R. G	2d lt. 1st Inf		Fort Porter, N. Y	July 1 to 31, 187
Arthur, William	1st lt., R. Q. M. 3d Art.	Major	Savannah, Ga	July 31 to Nov.
Do	do	do	Fort Hamilton, New York Harbor.	Feb. 28 to June
Aspinwall, John	2d lt. 7th Cav		Acting assistant quartermaster detachment of 7th Cavalry, at Memphis, Tenn.	Mar. 17 to 31, 18
Atwood, E. B	1st lt. 6th Inf	Major	Fort Stevenson, Dak	Sept. 1, 1872, to
Bacon, George E	2d lt. 16th Inf		Frankfort, Ky	Mar. 1 to June
Bacon, George R	2d lt. 1st Cav		Camp Halleck, Nev	July 1, 1872, to
Badger, N. D	1st lt. 22d Inf	Captain	Yellowstone Expedition, Dak.	July 11 to Oct.
Baldwin, J. H	1st lt., R. Q. M. 18th Inf.		Columbia, S. C	Feb. 1 to June
Bancroft, E. A	1st lt., R. Q. M. 4th Art.	Captain	Fort McHenry, Md	July 1 to Aug.
Bandy, William M	2d lt. 19th Inf		Saint Martinsville, La	May 9 to 31, 187
Barber, Merritt	1st lt. 16th Inf	Major	Taylor Barracks, Louisville, Ky.	Mar. 1 to June
Barnard, P. P	2d lt. 5th Cav	Captain	Ehrenberg, Ariz	July 27, 1872, to
Barrett, Gregory, jr	1st lt., R. Q. M. 10th Inf.		Fort McKavett, Tex	Sept. 16, 1872, to
Bascom, George M	1st lt., R. Q. M. 13th Inf.	Major	Fort Fred Steele, Wyo	July 1, 1872, to
Bates, R. F	2d lt. 18th Inf	1st lieut	Chester, S. C	Sept. 30, 1872, to
Bean, John W	1st lt. 15th Inf	Captain	Tulerosa Expedition, in the field, N. Mex.	July 1 to Sept.
Do	do		Fort McRae, N. Mex	Oct. 1 to 31, 187
Beck, William H	1st lt., R. Q. M. 10th Cav.	do	Fort Gibson, Ind. T	July 1 to 31, 18
Beebe, William S	1st lt. ord	Major	Watervliet arsenal, West Troy, N. Y.	July 1 to Aug.
Do	do	do	Allegheny arsenal, Pa	Oct. 1, 1872, to
Belger, E. A	1st lt. 3d Inf	do	Camp Supply, Ind. T	Apr. 1 to May
Bell, James M	1st lt. 7th Cav	do	St. Louis depot, Mo	July 1, 1872, to
Do	do	do	Northern boundary survey commission.	May 23 to June
Bird, Charles	1st lt. 23d Inf	Lt. Col	Camp Bowie, Ariz	Aug. 15, 1872, to
Birnie, Rogers, jr	2d lt. 13th Inf		Camp Douglas, Utah	Mar. 17 to Jun
Bishop, John S	1st lt. 13th Inf		Camp Stambaugh, Wyo	May 16 to June
Blair, Thomas	1st lt. 15th Inf		Fort Bayard, N. Mex	July 1, 1872 to
Bomus, P. S	2d lt. 1st Cav		Camp Apache, Ariz	May 1 to 15, 1
Booth, Charles A	2d lt. 1st Inf		Fort Brady, Mich	July 1 to Dec.
Booth, Chs. A	2d lt. 7th Inf		Fort Benton, Mont	Apr. 30 to Jun
Boyd, O. B	1st lt. 8th Cav		Summer camp 8th Cavalry, Canadian River, in the field, N. Mex.	July 1 to Oct.
Do	do		Fort Bayard, N. Mex	Mar. 12 to Jun
Boyle, William H	1st lt. 21st Inf		Camp on Lost River, Oreg.	Dec. 4, 1872, t May 1 to Ju
Do	do		Tule Lake, Cal	Apr. 1 to 30, 1
Bradford, J. H	Capt. 19th Inf		Detachment 19th Inf., A. A. Q. M.	Nov. 16 to 23,
Bradley, J. H	1st lt. 7th Inf		Fort Benton, Mont	July 1, 1872, to
Brinckle, J. R	1st lt. 5th Art	Major	Fort Warren, Mass	July 1 to Dec.
Brinkerhoff, H. R	1st lt. 15th Inf		Fort Wingate, N. Mex	July 1 to Nov.
Brodrick, P. T	2d lt. 23d Inf		Camp Hualpai, Ariz	Oct. 1, 1872, to
Brown, R. P	2d lt. 4th Inf		Lexington, Ky	July 1 to Dec.
Brush, D. H	2d lt. 17th Inf		Grand River agency, Dak.	July 1 to 8, 1
Bubb, John W	1st lt., R. Q. M. 4th Inf.		Frankfort, Ky	July 1 to Dec.
Do	do		Little Rock, Ark	Jan. 1 to May
Do	do		Fort Bridger, Wyo	May 21 to Jun

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B.—*List of officers on duty as acting assistant quartermasters, &c.*—Continued.

Name.	Lineal rank and regiment.	Brevet rank.	Stations.	Time during year on duty as A. A. Q. M.
Buffum, M. P	1st lt. 15th Inf.	Major...	Fort Tulerosa, N. Mex	July 1, 1872, to Jan. 27, 1873.
Bullis, John L	2d lt. 24th Inf		Fort Duncan, Tex	Apr. 15 to June 30, 1873.
Burbank, J. B	1st lt. 3d Art		Barrancas, Fla	Sept. 13 to Nov. 27, 1872.
Burnham, D. R	2d lt. 15th Inf		Fort Tulerosa, N. Mex	Jan. 27 to June 30, 1873.
Butler, William P	2d lt. Ord		Rock Isl'd arsenal, Ill.	July 1 to Dec. 31, 1872.
Calhoun, James	1st lt. 7th Cav		Elizabethtown, Ky	July 1 to 17, 1872.
Do	do		Lincolnton, N. C	Aug. 15 to Sept. 30, 1872.
Do	do		Charlotte, N. C	Oct. 1, 1872, to Feb. 28, 1873.
Campbell, John A	2d lt. 2d Art		Fort Macon, N. C	May 1 to June 30, 1873.
Campbell, W. J	2d lt. 22d Inf		Fort Randall, Dak	July 1, 1872, to June 30, 1873.
Capron, T. H	1st lt. 9th Inf		Camp Vincent, Neb	July 1 to Nov. 19, 1872.
Cavenaugh, H. G	1st lt. 13th Inf		Camp Douglas, Utah	July 1 to 31, 1872.
Chamberlin, L. A	1st lt. 1st Art		Fort Wadsworth, N. York Harbor.	July 1 to Nov. 15, 1872.
Do	do		Fort Pulaski, Ga	Nov. 20, 1872, to Apr. 1, 1873.
Chance, J. C	1st lt. 13th Inf		Camp Douglas, Utah	Aug. 1 to Nov. 18, 1872.
Chapin, E. S	2d lt. 4th Art		Cape Disappointment, Wash.	Dec. 1 to 15, 1872.
Do	do		Fort Stevens, Oreg	Jan. 1 to 31, 1873.
Clague, John J	2d lt. 12th Inf		Fort Yuma, Cal	Oct. 1, 1872, to Mar. 31, 1873.
Clark, Charles E	Capt. 17th Inf	Major...	Camp Hancock, Dak	Nov. 1, 1872, to Mar. 31, 1873.
Clark, E. R	2d lt. 10th Inf		Austin, Tex	July 1, 1872, to May 31, 1873.
Clifford, J. C	2d lt. Ord		Benicia Arsenal, Cal	July 1, 1872, to June 30, 1873.
Coe, John N	Capt. 20th Inf		Fort Totten, Dak	July 1 to Oct. 31, 1872.
Conrad C. H	1st lt. 15th Inf		Newport Barracks, Ky	July 1, 1872, to Mar. 31, 1873.
Courtney, M. L	1st lt. 25th Inf	Major...	Fort Stockton, Tex	July 31, 1872, to June 30, 1873.
Craig, Samuel	1st lt. 8th Inf		Beaver City, Utah	July 1, 1872, to June 30, 1873.
Craigie, D. J	1st lt. R. Q. M. 12th Inf.		Angel Island, Cal	July 1, 1872, to June 30, 1873.
Cranston, A	1st lt. 4th Art		Point San José, Cal	Nov. 16 to Dec. 1, 1872.
Cranston, J. R	2d lt. 10th Inf		Brazos Santiago, Tex	July 1 to 25, 1872.
Crawford, Emmet	1st lt. 3d Cav		Chugwater Station, Wyo.	July 1 to Oct. 28, 1872.
Crawford, M., jr	2d lt. 2d Art		Fort McHenry, Md	Nov. 23 to Dec. 11, 1872.
Craycroft, W. T	2d lt. 7th Cav		Unionville, S. C	Dec. 1 to 20, 1872, and Feb. 1 to 28, 1873.
Curry, James	1st lt. 5th Art		Fort Monroe, Va	Aug. 20 to Oct. 19, 1872.
Curtis, E. S	2d lt. 2d Art		Fort Stevens, Oreg	Aug. 17 to Oct. 23, 1872.
Do	do		Fort Johnston, N. C	Nov. 17, 1872, to June 30, 1873.
Cusack, Patrick	1st lt. 9th Cav	Captain	Fort Clark, Tex	Jan. 1 to Apr. 30, 1873.
Cushing, H. C	Capt. 4th Art	Major...	Sitka, Alaska	May 1 to June 30, 1873.
Custer, B. M	1st lt. 24th Inf		Fort Duncan, Tex	Oct. 1, 1872, to Apr. 15, 1873.
Do	do		Fort McIntosh, Tex	May 1 to June 30, 1873.
Custer, T. W	1st lt. 7th Cav		Unionville, S. C	July 1 to Nov. 30, 1872.
Do	do		Oxford, Miss	Jan. 9 to Feb. 28, 1873.
Davies, F. L	2d lt. 22d Inf		Lower Brulé Agency, Dak.	Sept. 8, 1872, to June 30, 1873.
Davis, C. E. L. B	1st lt. Eng		Willet's Point, N. Y. Harbor.	July 1 to Nov. 30, 1872.
Davis, Charles L	1st lt. 10th Inf	Major...	Ringgold Barracks, Tex.	July 1 to Aug. 31, 1872.
Davis, George B	2d lt. 5th Cav		Camp Bowie, Ariz	July 1 to Aug. 15, 1872.
Do	do		Calabosas, Ariz	Sept. 1 to Nov. 30, 1872.
Dempsey, Charles A	1st lt. & adjt. 2d Inf.		Mobile, Ala	Apr. 12 to 23, 1873.
De Rudio, C. C	2d lt. 7th Cav		Livingston, Ala	Oct. 1 to 24, 1872.
Denison, D. S	2d lt. 5th Art		Fort Sullivan, Me	July 1 to Aug. 16, 1872.
Deshler, G. W	2d lt. 1st Art		Fort Ontario, N. Y	July 1 to Sept. 30, 1872.
Dillenback, J. W	1st lt. 1st Art		Savannah, Ga	Nov. 19, 1872, to June 30, 1873.
Dodge, P. L	2d lt. 23d Inf		Fort Whipple, Ariz	Oct. 1, 1872, to Jan. 31, 1873.
Dodge, H. C	1st lt. 2d Art	Captain.	Sitka, Alaska	July 1, 1872, to Jan. 27, 1873.
Dove, William E	1st lt. 12th Inf		Camp Independence, Cal.	July 1, 1872, to June 30, 1873.
Drury, Thomas	1st lt. 2d Inf		Saint Augustine, Fla	Oct. 3 to Nov. 11, 1872, and Dec. 12, 1872, to June 30, '73.
Dudley, E. S	2d lt. 2d Art		Fort Cape Disappointment, Wash.	July 1 to Oct. 31, 1872.
Do	do		Fort Macon, N. C	Jan. 1 to May 1, 1873.
Duff, George	2d lt. 1st Inf	1st lt....	Fort Gratiot, Mich	July 1, 1872, to May 31, 1873.
Duggan, W. T	2d lt. 10th Inf		Brazos Santiago, Tex	July 25 to Dec. 7, 1872.
Dutton, C. E	1st lt. Ord		Washington Arsenal, D. C.	July 1, 1872, to June 30, 1873.
Dwyer, Philip	Capt. 5th Cav		Camp Date Creek, Ariz	Aug. 1 to 29, 1872.
Eakin, C. P	1st lt. 1st Art	Major...	Key West, Fla	Apr. 1 to June 30, 1873.
Eastman, J. E	1st lt. 2d Art		Alcatraz Island, Cal	July 1 to Nov. 18, 1872.
Do	do		Fort Foote, Md	Dec. 13, 1872, to June 30, 1873.
Ebstein, F. H. E	2d lt. 21st Inf		Camp Date Creek, Ariz	July 1 to 31, 1872.
Do	1st lt. 21st Inf		Camp San Juan Island, Wash.	Oct. 1, 1872, to June 30, 1873.
Edgerly, W. S	2d lt. 7th Cav		Opelika, Ala	July 1, 1872, to Mar. 31, 1873.

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B.—*List of officers on duty as acting assistant quartermasters, &c.*—Conti

Name.	Lineal rank and regiment.	Brevet rank.	Stations.	Time during yea A. A. Q
Edmunds, F. H	2d lt. 1st Inf		Fort Brady, Mich	Dec. 6, 1872, to J
Elderkin, W. A	Capt. C. S., U. S. A.	Major	Pueblo, Colo	July 1, 1872, to J and June 1 to
Elliott, W. L	Lt. col. 1st Cav.	Maj-gen.	Benicia Barracks, Cal	Jan. —, 1873, to
Engle, John B	1st lt. 15th Inf.		Fort Craig, N. Mex	July 1, 1872, to
Evans, George W	1st lt. & adjt. 21st Inf.	Captain	Fort Vancouver, Wash	Feb. 1 to May 3
Farnsworth, H. J	1st lt. 8th Cav	do	Fort McRae, N. Mex	Nov. 1, 1872, to
Fechét, E. O	2d lt. 2d Art		Fort Stevens, Oreg	July 1 to Aug.
Ferris, Samuel P	Capt. 4th Inf	Major	Lebanon, Ky	July 1 to Dec. 1
Fletcher, R. H	2d lt. 21st Inf		Fort Lapwai, Ind. T	Mar. 7 to June
Foote, George F	1st lt. R. Q. M. 8th Cav.	Captain	Fort Union, N. Mex	July 1 to Sept.
Forse, A. G	1st lt. 1st Cav		Camp McDermit, Nev	June 7 to 30, 18
Fountain, S. W	2d lt 8th Cav		Fort Wingate, N. Mex	Nov. 15, 1872, to
French, Thomas H	Capt. 7th Cav		Oxford, Miss	Jan 1 to 9, 1873.
Fuger, Fred	1st lt. 4th Art	Captain	Fort Washington, Md	July 1 to Sept.
Do	do	do	Alcatras Island, Cal	Nov. 18, 1872, to
Gibbs, E. B	1st lt. 6th Inf		Office C. Q M., Dept. South, Louisville, Ky.	July 1 to Dec.
Do	do		Saint Paul, Minn	May 14 to June
Gibson F. M	1st lt. 7th Cav		Livingston, Ala	Oct. 24 to ——
Goodwin, E. A	2d lt. 8th Cav		Fort Selden, N. Mex	July 1, 1872, to
Gray, C. N	1st lt., Adj't 25th Inf.		Fort Davis, Tex	Sept. 1, 1872, to
Grealish, M. J	Capt., O. S. K		Pikesville Arsenal, Md	July 1, 1872, to
Greene, A. P	1st lt. 4th Art		Fort Macon, N. C	July 1 to Nov.
Greenough, G. G	do		Point San José, Cal	March 31 to M
Do	do		In the field	May 9 to June
Grier, M. C	do		Fort Foote, Md	July 1 to Oct.
Do	do		Battalion quartermaster Modoc expedition in the field.	Jan. 21 to June
Grimes, George S	1st lt. 2d Art		Fort Whipple, Va	July 1, 1872, to
Guthrie, John B	1st lt. 13th Inf		Camp Brown, Wyo	July 1, 1872, to
Hall, R. M	1st lt., R. Q. M. 1st Art.	Colonel	Fort Hamilton, New York Harbor.	July 1 to Nov.
Do	do	do	Charleston, S. C	Dec. 1, 1872, to
Halloran, James	1st lt. 12th Inf		Camp Wright, Cal	July 1, 1872, to
Hamner, W. H	2d lt. 20th Inf		Fort Ripley, Miss	Aug. 1, 1872, to
Hamilton, John	1st lt. 1st Inf		Fort Gratiot, Mich	June 1 to 30, 1
Hanway, John W	2d lt. 3d Inf		Fort Reynolds, Colo	July 1 to Aug.
Do	do		Fort Lyon, Colo	Jan. 1 to June
Harrold, C. W	1st lt. 3d Art		Fort Hamilton, New York Harbor.	Feb. 1 to 28, 18
Hart, V. K	Capt. 7th Cav	Lt.-col	Lincolnton, N. C	July 15 to Au
Hart, Daniel	1st lt. 25th Inf.	Major	Fort Quitman, Tex	July 1, 1872, to
Hartz, W. T	1st lt. 15th Inf	do	Fort Garland, Colo	July 1, 1872, to
Harwood, Paul	1st lt. 20th Inf.		Fort Pembina, Dak	July 1, 1872, to
Haskell, H. L	2d lt. 12th Inf.		Camp Gaston, Cal	April 14, to Ju
Hatch, John P	Maj. 4th Cav	Br.-gen.	In charge of office chief quartermaster, Department Texas.	May 19 to Jun
Hathaway, F. H	2d lt., R. Q. M. 5th Inf.	Captain	Fort Leavenworth, Kans.	July 1, 1872, to
Haughey, James A	1st lt. 21st Inf.		Ehrenberg, Ariz	July 1 to 27, 1
Hawley, William	1st lt. 20th Inf.		Fort Wadsworth, Dak.	Aug. 1 to Dec
Hay, Charles	1st lt. 23d Inf		Camp McDowell, Ariz.	Oct. 1, 1872, to
Hein, O. L	2d lt. 1st Cav		Camp Verde, Ariz	July 1 to Sept
Heintzleman, C. S	1st lt. 3d Art		Key West, Fla	Sept. 1 to Nov
Do	do		Fort Niagara, N. Y	Dec. 8, 1872, to
Hennisee, A. G	1st lt. 8th Cav.		Fort Stanton, N. Mex	Oct. 31, 1872, t
Hill, R. M	Capt. Ord	Major	Indianapolis Arsenal, Ind.	July 1, 1872, t
Hoag, W. R	2d lt. 21st Inf		Fort Colville, Wash	July 31, 1872,
Hobbs, C. W	2d lt. 3d Art	Captain	Key West, Fla	July 1 to Aug
Hoffman, A. W	1st lt. 10th Inf.		Austin, Tex	June 1 to 30,
Howard, O. H	1st lt. 5th Art.	Major	Fort Trumbull, Conn	July 1, 1872, t
Howe, Albion	1st lt. 4th Art.	Captain	Charlotte, N. C	July 1 to Sep
Howell, R. G	1st lt. 2d Art		Raleigh, N. C	April 1 to Ma
Hoyt, George S	2d lt. 18th Inf.		Atlanta, Ga	July 1 to 31, 1
Hubbard, E. B	1st lt. 2d Art		Camp San Juan Island, Wash.	July 1 to Sep
Do	do		Fort Macon, N. C	Nov. 17 to De
Hubbell, H. W., jr	2d lt. 1st Art		Fort Pulaski, Ga	April 1 to Ju
Hugo, W. H	1st lt. 9th Cav.		Ringgold Barracks, Tex	Sept. 1 to 21,
Humbert, James	1st lt. 17th Inf.		Camp Hancock, Dak	Apr. 1 to Jun
Humphrey, Charles F	1st lt. 4th Art.		Fort Johnston, N. C	July 1 to Nov
Do	do		Point San José, Cal	Dec. 1, 1872, t
Humphreys, H. H	1st lt. 15th Inf.	Lt. Col	Fort Cummings, N. Mex	Aug. 1, 1872,

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B.—*List of officers on duty as acting assistant quartermasters, &c.*—Continued.

Name.	Lineal rank and regiment.	Brevet rank.	Stations.	Time during year on duty as A. A. Q. M.
Hunter, Ed	1st lt. R. Q. M. 1st Cav.	.....	Benicia Barracks, Cal	July 1 to Dec. 10, 1872.
Hurst, J. H	2d lt. 12th Inf	Captain	Beale's Springs, Ariz	July 1, 1872, to June 30, 1873.
Hyer, John K	1st lt. 18th Inf	.....	Laurens, S. C	Aug. 17, 1872, to Jan. 25, 1873.
Ingalls, Jas. M	1st lt. 1st Art	.....	Fort Jefferson, Fla	Nov. 17, 1872, to June 30, 1873.
Ingersoll, Ed	Maj. & O. S. K	.....	Springfield Armory, Mass.	July 1, 1872, to June 30, 1873.
Irwin, D. A	1st lt. 4th Cav	.....	Saint Louis Depot, Mo.	Feb. 28 to June 30, 1873.
Ives, R. A	2d lt. 5th Art	.....	Fort Preble, Me	July 1 to Aug. 13, 1872, and Sept. 19, 1872, to Mar. 31, 1873.
Jacobs, J. W	1st lt. R. Q. M. 7th Inf.	.....	Fort Shaw, Mont	Mar. 11 to June 30, 1873.
Jocelyn, S. P	2d lt. 1st Inf	.....	Camp Warner, Oreg	Mar. 1 to June 30, 1873
Johnson, John B	1st lt., adj. 3d Cav.	.....	Fort McPherson, Neb	Apr. 1 to May 1, 1873.
Johnston, John L	1st lt. R. Q. M. 21st Inf.	Captain	Fort Vancouver, W.T.	June 1 to 30, 1873.
Jones, F. B	1st lt. R. Q. M. 3d Inf.	.....	Fort Hays, Kans	July 1, 1872, to June 30, 1873.
Jones, S. R	1st lt. 4th Art	.....	Raleigh, N. C	July 1 to Nov. 17, 1872.
Jordan, Charles	1st lt. 16th Inf	.....	Jackson, Miss	July 1 to 31, 1872.
Keeffe, Joseph	1st lt. 5th Art	Captain	Plattsburgh Barracks, N. Y.	July 1 to Dec. 31, 1872.
Keller, Charles	1st lt. 2d Inf	.....	Spartanburgh, S. C	Mar. 1 to June 24, 1873.
Kelton, D. H	1st lt. 10th Inf	.....	San Antonio, Tex	July 1, 1872, to Mar. 31, 1873.
Do	do	.....	A. A. Q. M. to Board of Officers for the purchase of horses for 9th Cavalry, at Ringgold Barracks, Tex.	May 12 to June 13, 1873.
Kendall, H. M	1st lt. 6th Cav	.....	Oxford, Miss	July 1 to Dec. 30, 1872.
Do	do	.....	Fort Harker, Kans	Jan. 6 to Apr. 2, 1873.
King, James S	1st lt. 12th Inf	.....	Fort Hall, Idaho	July 1, 1872, to June 30, 1873.
Kingsbury, Geo. W	2d lt. 12th Inf	.....	Camp Gaston, Cal	July 1, 1872, to Apr. 14, 1873.
Kingsbury, H. P	2d lt. 6th Cav	.....	Meridian, Miss	July 1 to Dec. 15, 1872.
Do	do	.....	Fort Harker, Kans	Dec. 22, 1872, to Jan. 6, 1873.
Kingsbury, W. E	1st lt. 11th Inf	.....	Fort Griffin, Tex	Dec. 16, 1872, to June 30, 1873.
Knox, Thomas T	2d lt. 1st Cav	.....	Camp McDermit, Nev.	July 1, 1872, to June 7, 1873.
Krasznyski, M	2d lt. 12th Inf	.....	Camp Mojave, Ariz	July 1 to 31, 1872.
Krause, William	1st lt. 3d Inf	.....	Fort Dodge, Kans	July 1 to Nov. 10, 1872.
Kress, John A	1st lt. Ord	Major	Vancouver Arsenal, Wash.	July 1, 1872, to June 30, 1873.
Kyle, William J	1st lt. 11th Inf	.....	Fort Richardson, Tex	July 1, 1872, to Jan. 1, 1873.
Lawton, H. W	1st lt. R. Q. M. 4th Cav.	.....	Fort Clark, Tex	Apr. 30 to June 30, 1873.
Lee, J. M	1st lt. 9th Inf	.....	Fort D. A. Russell, Wyo.	Aug. 31 to Oct. 15, 1872.
Leefe, John G	1st lt. R. Q. M. 19th Inf.	Captain	Baton Rouge, La	July 1, 1872, to Apr. 30, 1873
Do	do	do	Jackson Barracks, La	May 1 to June 30, 1873.
Lenia, Luigi	1st lt. 5th Art	.....	Fort Wadsworth, N. Y	Nov. 15 to 30, 1872.
Lord, James H	1st lt. R. Q. M. 2d Art.	Major	Presidio, San Francisco, Cal.	July 1 to Nov. 15, 1872.
Do	do	do	Fort McHenry, Md	Dec. 11, 1872, to June 30, 1873.
Lord, Thomas W	1st lt. R. Q. M. 20th Inf.	.....	Fort Snelling, Minn	July 1, 1872, to June 30, 1873.
Love, George M	2d lt. 16th Inf.	Lt. Col	Frankfort, Ky	Dec. 15, 1872, to Feb. 28, 1873.
Do	do	do	Lebanon, Ky	Mar. 1 to June 30, 1873.
Luff, Edmund	1st lt. 8th Cav	.....	Summer camp 8th Cav. Canadian River, N. Mex.	Apr. 28 to June 30, 1873.
Mac Gowan, A. B	Capt. 12th Inf	.....	Fort Yuma, Cal	April 1 to June 23, 1873.
Mackay, William S	1st lt. 3d Inf	.....	Fort Lyon, Colo	July 1 to Dec. 31, 1872.
Macklin, J. E	2d lt. 22d Inf	.....	Fort Sully, Dak	June 1 to 30, 1873.
Maclay, Isaac W	1st lt. Ord	.....	Watervliet Arsenal, West Troy, N. Y.	Aug. 5, 1872, to Jan. 1, 1873.
Mac Nutt, Ira	2d lt. 3d Art	.....	Barrancas, Fla	July 1 to Sept. 13, 1872.
Mahon, S. K	1st lt. 16th Inf	Captain	Holly Springs, Miss	Dec. 11 to 31, 1872.
Do	do	do	Oxford, Miss	June 12 to 30, 1873.
Maize, William K	1st lt. 20th Inf	do	Camp Sykes, Dak	July 1 to Sept. 7, 1872.
Do	do	do	Fort Wadsworth, Dak	Dec. 12, 1872, to June 30, 1873
Manley, John A	do	.....	Fort Ripley, Minn	July 1 to 31, 1872.
Manning, William C	1st lt. 23d Inf	.....	Camp Apache, Ariz	May 15 to June 30, 1873.
Mansfield, F. W	2d lt. 11th Inf	.....	Acting assistant quartermaster of escort to Texas Pacific Railroad survey.	Jan. 1 to May 26, 1873.
Marcotte, Henry	1st lt. 17th Inf	Captain	Newport Barracks, Ky	April 1 to June 30, 1873.

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B.—*List of officers on duty as acting assistant quartermasters, &c.*—Conti

Name.	Lineal rank and regiment.	Brevet rank.	Stations.	Time during ye A. A.
Markley, A. C	1st lt. 24th Inf.		Fort McIntosh, Tex	July 1, 1872, to
Marshall, J. M	1st lt. 4th Art		West Point, N. Y	Sept. 1, 1872, to
Mathey, E. G	1st lt. 7th Cav		Spartanburgh, S. C	July 1, 1872, to
McCallum, William B	1st lt. 5th Art		Fort Preble, Me	Aug. 13 to Sept
McCauley, C. A. H	2d lt. 3d Art		Fort Wadsworth, N. Y	Nov. 30, 1872, to
McClellan, John	1st lt. 5th Art		Fort Warren, Mass	Dec. 11, 1872, to
McConihe, Samuel	1st lt. 14th Inf	Lt. Col	Sidney Barracks, Nebr	June 11 to 30, 1
McCrea, Tully	Capt. 1st Art	Major	West Point, N. Y	July 1 to Aug.
McDermott, George B	2d lt. 23d Inf		Camp Verde, Ariz	Oct. 1, 1872, to
McDonald, Robert	1st lt. 5th Inf		Fort Larned, Kans	March 12 to Ap
McDougall, Thos. M	1st lt. 7th Cav	Captain	Unionville, S. C	Dec. 20, 1872, to
McGilvray, John	1st lt. 2d Art	do	Raleigh, N. C	Nov. 17, 1872, to
McIntyre, A	2d lt. 2d Inf		Chattanooga, Tenn	July 1, 1872, to
McKee, George W	1st lt. Ord	Major	St. Louis Arsenal, Mo	Do.
McNaught, John S	Capt. 20th Inf		Fort Wadsworth, Dak	July 1 to 31, 18
McNutt, John	Maj. Ord	Colonel	Columbus Arsen'l, Ohio	July 1, 1872, to
McTaggart, C. P	1st lt. 17th Inf		Grand River ag'y, Dak	May 1 to June
Metcalfe, Charles	2d lt. 17th Inf		do	Dec. 21, 1872, to
Michaelis, O. E	1st lt. Ord	Captain	Watertown Arsenal, Mass.	July 1, 1872, to
Michler, Frank	2d lt. 5th Cav		Camp Hualpai, Ariz	May 8 to June
Miles, Evan	Capt. 21st Inf		Fort Colville, Wyo	July 1 to 31, 18
Miller, C. P	1st lt. 4th Art		Fort McHenry, Md	Aug. 20 to Oct.
Do	do		Presidio, San Francisco, Cal.	Nov. 15, 1872, to
Miller, James	1st lt. R. Q. M. 2d Inf.		Mobile, Ala	July 1, 1872, to and April 23
Miller, M. P	Capt. 4th Art	Lt. Col	Fort Stevens, Oreg	Dec. 1 to 31, 18
Miller, William A	1st lt. 18th Inf		Newberry, S. C	Nov. 30, 1872, to and May 31 to
Miller, William H	2d lt. 9th Inf		Red Willow Cr'k, Nebr	July 1 to Nov.
Moore, Francis	Capt. 9th Cav		Fort Clark, Tex	July 1 to Sept.
Morgan, A. S. M	Capt. O. S. K		Allegheny Arsenal, Pa	Do.
Morris, L. M	1st lt. 20th Inf	Captain	Fort Totten, Dak	Oct. 31, 1872, to
Morris, Louis T	Capt. 3d Inf	Major	Fort Wallace, Kans	Nov. 30, 1872, t
Morton, Alfred	1st lt. R. Q. M. 9th Inf.		Ft. D. A. Russell, Wyo	July 1 to Aug.
Do	do		Omaha Barracks, Nebr	Oct. 1, 1872, to
Murphy, John	2d lt. 14th Inf		Camp on Laramie River, Wyo.	May 17 to —, 1
Nave, A. H	2d lt. 7th Cav		Shelbyville, Ky	July 1 to Sept.
Neide, Horace	1st lt. 4th Inf	Major	Paducah, Ky	July to Augus
Nelson, Wm. H	1st lt. 7th Inf		Camp Baker, Mont	July 1, 1872, to
Nesmith, L. A	2d lt. 12th Inf		Camp Halleck, Nev	Jan. 27 to June
Nettarville, W. McC	Capt. 21st Inf		Fort Stevens, Oreg	Oct. 23 to Nov.
Newkirk, E. P	1st lt. 4th Art		Rutherfordton, N. C	Sept. 1 to Oct. 3
Nixon, John B	1st lt. R. Q. M. 24th Inf.		Fort McKavett, Tex	July 1 to Sept.
Northup, E. B	1st lt. 17th Inf		Grand River Agency, Dak.	July 8 to Sept.
Nowlan, H. J	1st lt. R. Q. M. 7th Cav.		Newport Barracks, Ky.	July 1, 1872, to
Do	do		Det. 7th Cavalry in the field, Dak.	—, 1873, to J
O'Brien, John J	2d lt. 4th Inf		Mount Sterling, Ky	July 1 to Dec.
O'Connell, John J	2d lt. 1st Inf		Madison barr'ks, N. Y	Oct. 1, 1872, to
O'Conner, Stephen	1st lt. 23d Inf		Camp Crittenden, Ariz	July 1, 1872, to
Olmstead, J. A	1st lt. 13th Inf		Camp Stambaugh, Wyo	Oct. 1, 1872, to
Osgood, H. B	1st lt. 3d Art		Fort Jefferson, Fla	July 1 to Nov.
Do	do		Fort Ontario, N. Y	Dec. 7, 1872, to
Pardee, J. H	2d lt. 23d Inf		New Camp Grant, Ariz	Feb. 1 to May
Parnell, William R	1st lt. 1st Cav	Lt. Col	Camp Harney, Oreg	July 1 to Oct.
Paul, C. R	1st lt. 18th Inf	Captain	Sumter, S. C	July 1, 1872, to
Payson, A. H	1st lt. Eng'rs		Willet's Point, N. Y	Dec. 1, 1872, to
Penney, Charles G	1st lt. R. Q. M. 6th Inf.	Captain	Fort Buford, Dak	July 1 to Aug May 20 to Ju
Pepoon, Silas	1st lt. 10th Cav.		Fort Gibson, Ind. T	Mar. 1 to Apri
Do	do		Det. 9th Inf. *en route* from Fort Gibson to Fort Sill, Ind. T.	April 25 to Ma
Pickett, George B	1st lt. 16th Inf		Oxford, Miss	Dec. 30, 1872, to and Mar. 1 to
Pierce, F. E	1st lt. 1st Inf		Fort Niagara, N. Y	Nov. 1 to Dec.
Pike, A. F	1st lt. 13th Art		Fort Wood, New York Harbor.	Dec. 8, 1872, to
Pitman, John	2d lt. Ordnance		Watervliet Arsenal, West Troy, N. Y.	Jan. 1 to June
Pollock, Robert	Capt. 21st Inf		Fort Klamath, Oreg	July 1, 1872, to
Pond, George E	2d lt. 8th Cav		Camp Loma, Colo	June 1 to 30, 18

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B.—*List of officers on duty as acting assistant quartermasters, &c.*—Continued.

Name.	Lineal rank and regiment.	Brevet rank.	Stations.	Time during year on duty as A. A. Q. M.
Pope, John, jr	2d lt. 1st Art.		Fort Wood, New York Harbor.	July 1 to Dec. 8, 1872.
Porter, James E.	1st lt. 7th Cav.		Lincolnton, N. C	July 1 to 15, 1872.
Do	do		Shelbyville, Ky	Oct. 1 to Dec. 30, 1872.
Do	do		Lebanon, Ky	Dec. 17, 1872, to Feb. 28, 1873.
Potts, R. D.	1st lt. 3d Art.		Savannah, Ga	July 1 to 31, 1872.
Price, Butler D.	2d lt. 4th Inf.		Paducah, Ky	Aug. 8, 1872, to Jan. 14, 1873.
Price, George F.	1st lt. R. Q. M. 5th Cav.		Camp McDowell, Ariz.	July 1 to Sept. 30, 1872.
Prince, William	1st. lt. Ord.	Captain	Frankford Arsenal, Pa.	July 1, 1872, to June 30, 1873.
Pullman, J. W	2d lt. 8th Cav.		In the field, camp at Tierra Amarilla, (old Fort Lowell,) N. Mex.	July 1 to Oct. —, 1872.
Do	do		Fort Union, N. Mex.	June 1 to 30, 1873.
Purington, George A.	Capt. 9th Cav.	Colonel.	Parkersburgh, W. Va., recruiting-officer, A. A. Q. M.	July 1 to Nov. 13, 1872.
Quinan, William R.	2d lt. 4th Art.		Sitka, Alaska	——13, to April 30, 1873.
Quinby, De H. G	2d lt. 5th Inf.		Fort Larned, Kans.	July 1, 1872, to Mar. 10, 1873.
Quimby, H. B.	1st. lt. R. Q. M. 25th Inf.		Fort Davis, Tex	July 1 to Aug. 31, 1872, and Jan. 16 to June 30, 1873.
Quinby, Ira	1st lt. R. Q. M. 11th Inf.		Fort Griffin, Tex.	July 1 to Dec. 16, 1872.
Do	do		Fort Richardson, Tex	Jan. 1 to June 30, 1873.
Randall, E. L	1st lt. 5th Inf.		Fort Harker, Kans	July 1 to Oct. 31, 1872.
Do	do		Fort Larned, Kans.	April 15 to June 30, 1873.
Raphall, A. W	1st lt. 11th Inf		San Antonio, Tex.	April 1 to June 30, 1873.
Rawolle, William C.	1st lt. R. Q. M. 2d Cav.		Omaha Barracks, Nebr.	July 1 to Sept. 30, 1872.
Do	do		Fort Sanders, Wyo.	Nov. 1, 1872, to June 30, 1873.
Ray, P. H.	2d lt. 8th Inf.		Det. 8th Inf., Dak.	July 10 to Oct. 20, 1872.
Reedy, W. J	1st lt. 22d Inf.		Lower Brule Agency, Dak.	July 1 to Sept. 8, 1872.
Rexford, William H.	Capt. C. S. K		Mount Vernon Arsenal, Ala.	July 1, 1872, to June 30, 1873.
Rheem, R. B	2d lt. 21st Inf.		Fort Vancouver, Wash.	Dec. 1 to 31, 1872.
Rice, William F.	1st lt 23d Inf.		Camp Hualpai, Ariz	April 12 to May 8, 1873.
Do	do		Fort Yuma, Cal.	May 23 to June 30, 1873.
Richards, William V.	1st lt. R. Q. M. 16th Inf.		Nashville, Tenn	July 1, 1872, to June 30, 1873.
Riley, Thomas F.	1st lt. 21st Inf.		Camp Harney, Oreg.	Nov. 1, 1872, to Dec. 31, 1872.
Roberts, C. S	1st lt. 17th Inf	Captain	Cheyenne Ag'cy, Dak	July 1, 1872, to June 30, 1873.
Robinson, F. U	2d lt. 2d Cav.		Camp Stambaugh, Wyo	July 1 to Sept. 30, 1872.
Robinson, Thomas B	1st lt. 19th Inf		Little Rock, Ark.	July 1 to Dec. 19, 1872.
Rockwell, Charles H.	1st lt. R. Q. M., 5th Cav.		Camp Grant, Ariz.	July 1 to Nov. 23, 1872.
Rockwell, James, jr.	2d lt. adj't, 1st Cav.		Benicia Barracks, Cal	Dec. 10, 1872, to Jan. —, 1873, and May 31 to June 30, 1873.
Rodgers, C. P	1st lt. 5th Cav.		Camp Grant, Ariz.	May 10 to June 30, 1873.
Roder, John W	1st. lt. adj't, 4th Art.		Point San José, Cal	May 9 to June 30, 1873.
Roemer, Paul	1st lt. 5th Art.		Fort McHenry, Md.	Nov. 1 to 23, 1872.
Rogers, B. H	1st lt. 13th Inf		Fort Bridger, Wyo.	July 1, 1872, to May 21, 1873.
Rogers, J. Sumner	2d lt. 1st Inf.		Fort Wayne, Mich	July 1, 1872, to June 30, 1873.
Rogers, William W.	1st lt. 9th Inf.	Captain	Sidney Barracks, Nebr.	July 1, 1872, to June 11, 1873.
Rollins, James H.	Capt. Ordnance.		Augusta Arsenal, Ga.	July 1, 1872, to June 30, 1873.
Romeyn, Henry	1st lt. 5th Inf.	Captain	Post southeast Kansas, Fort Scott, Kans.	July 1, 1872, to April 20, 1873.
Do	do	do	Fort Gibson, Ind. Ter.	April 22 to June 30, 1873.
Rosencrantz, Fred	1st lt. 16th Inf.		Aberdeen, Miss	July 1, 1872, to April 30, 1873.
Do	do		Little Rock, Ark	May 6 to June 30, 1873.
Ross, John M	1st lt. 21st Inf.		Fort Cape Disappointment, Wash.	Nov. 1 to Nov. 30, 1872.
Ross, William J.	2d lt. 21st Inf.		Field, quartermaster's headquarters, Dep't Arizona.	July 1, 1872, to June 30, 1873.
Rucker, L. H.	1st lt. R. Q. M. 9th Cav.		Fort Clark, Tex	Oct. 1 to Dec. 31, 1872.
Do	do		Ringgold Barracks, Tex	Feb. 14 to June 30, 1873.
Russell, E. K	1st lt. 1st Art.		Key West, Fla	Nov. 17, 1872, to Mar. 31, 1873.
Rutherford, R. G	2d lt. 12th Inf.	Captain.	Fort Columbus, New York Harbor.	July 1, 1872, to June 30, 1873.
Saye, George E.	2d lt. 5th Art.		Fort Independence, Mass.	July 1, 1872, to June 30, 1873.
Sanda, J. H	1st lt. 6th Cav.		Camp 6th Cavalry, near Fort Hays, Kans.	July 1 to July —, 1872.
Sarno, J. M. J	Capt. 7th Inf.		Fort Shaw, Mont.	Aug. 1, 1872, to Mar. 11, 1873.
Sarson, H. B	1st lt. 2d. Inf.		Huntsville, Ala	July 1, 1872, to June 30, 1873.

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B.—*List of officers on duty as acting assistant quartermasters, &c.*—Continued.

Name.	Lineal rank and regiment.	Brevet rank.	Stations.	Time during year on duty as A. A. Q. M.
Sawyer, J. E	2d lt. 5th Art		Fort Foote, Md	Nov. 1 to Dec. 13, 1872.
Schwatka, Fred	2d lt. 3d Cav		North Platte, Nebr	July 1, 1872, to June 30, 1873.
Scott, John	2d lt. 4th Inf		Crab Orchard, Ky	July 1 to Dec. 25, 1872.
Sellmer, Charles	2d lt. 3d Art	Captain	Fort Pulaski, Ga	July 1 to Nov. 20, 1872.
Do	do	do	David's Island, New York Harbor.	Nov. 27, 1872, to June 30, 1873.
Sharp, Thomas	1st lt. 1st Inf		Fort Mackinac, Mich	July 1, 1872, to June 30, 1873.
Shelby, Isaac O	2d lt. 16th Inf		Jackson, Miss	July 1, 1872, to June 30, 1873.
Shelton, E. H	2d lt. 1st Cav		Fort Lapwai, Idaho	July 1, 1872, to Mar. 7, 1873.
Sherman, H. P	2d lt. 15th Inf		Fort Cummings, N. Mex.	May 1 to June 30, 1873.
Sherman, James L	1st lt. 1st Art		Fort Niagara, N. Y	July 1 to October 31, 1872.
Do	do		Fort Barrancas, Fla	Nov. 27, 1872, to June 30, 1873.
Sherwood, William L	1st lt. 21st Inf		Fort Vancouver, Wash	Jan. 1 to Jan. 31, 1873.
Shorkley, George	Capt. 15th Inf	Major	Fort McRae, N. Mex	July 1 to Sept. 30, 1872.
Silva, V. M. C	Capt. 21st Inf		Fort Vancouver, Wash	July 1 to Nov. 30, 1872.
Simpson, James F	2d lt. 3d Cav	Captain	Fort McPherson, Nebr.	Nov. 1, 1872, to Mar. 30, 1873.
Simpson, John	1st lt. 4th Art		Presidio, San Francisco, Cal.	April 1 to June 30, 1873.
Slade, Charles E	2d lt. 15th Inf		Fort Stanton, N. Mex	July 1 to Oct. 31, 1872.
Smith, A. E	1st lt. 7th Cav	Captain	Elizabethtown, Ky	July 17, 1872, to Feb. 28, 1873.
Do	do	do	Detachment 7th Cav., in the field, Dak.	June 15 to June 30, 1873.
Smith, F. G	Capt. 4th Art	Major	Fort Cape Disappointment, Wash.	Dec. 15, 1872, to June 30, 1873.
Do	do	do	Fort Stevens, Oreg	Feb. 1 to June 30, 1873.
Smith, Lewis	1st lt. R. Q. M. 3d Art.		Charleston, S. C	July 1 to Oct. 31, 1872.
Do	do		Fort Hamilton, New York Harbor.	Nov. 7, 1872, to Feb. 1, 1873.
Do	do		Fort Wadsworth, New York Harbor.	May 31 to June 30, 1873.
Spencer, George K	2d lt. 19th Inf		Baton Rouge, La	May 1 to June 30, 1873.
Spurgin, W. F	1st lt. 21st Inf	Major	Fort Boise, Idaho	July 1, 1872, to June 30, 1873.
Stafford, J. S	1st lt. 20th Inf		Fort Ransom, Dak	July 1 to Sept. —, 1872.
Starr, Irwin M	1st lt. 9th Cav		Fort Duncan, Tex	July 1 to Sept. 30, 1872.
Steele, George W	1st lt. R. Q. M. 14th Inf.		Fort Laramie, Wyo. T	July 1 to Sept. 30, 1872.
Steelhammer, Charles	Capt. 15th Inf		Fort Cummings, N. Mex.	July 1 to July 31, 1872.
Stone, E. W	1st lt. 21st Inf	Lt. Col	Jacksonville, Oreg	Dec. 7, 1873, to Feb. 13, 1873.
Do	do	do	Yreka, Cal	Feb. 21 to June 30, 1873.
Storrow, S. A	Capt. and asst. surg. U. S. A.	Major	Fort Ontario, N. Y	Nov. 1 to Dec. 7, 1872.
Sullivan, T. C	Capt. C. S., U. S. A.	Lt. Col	Sioux City, Iowa	Feb. 15 to June 30, 1873.
Taylor, Frank	2d lt. 14th Inf		Fort Fetterman, Wyo.	July 1, 1872, to June 30, 1873.
Taylor, George McM	1st lt. 23d Inf		Camp Grant, Ariz	Nov. 23, 1872, to Apr. 18, 1873.
Taylor, S. W	2d lt. 4th Art		Rutherfordton, N. C	July 1 to Aug. 30, 1872.
Theller, E. R	1st lt. 21st Inf		Camp Hualpai, Ariz	July 1 to Sept. 30, 1872.
Thompson, E. F	Capt. 12th Inf		Camp Mojave, Ariz	Aug. 1 to Nov. 30, 1872.
Thompson, John C	1st lt. R. Q. M. 3d Cav.		Fort McPherson, Nebr	July 1 to Oct. 31, 1872, and May 5 to June 30, 1873.
Thompson, R. E	2d lt. 6th Inf		Fort Stevenson, Dak	July 1 to August 30, 1872.
Thorne, P. M	1st lt. R. Q. M. 22d Inf.		Fort Sully, Dak	July 1, 1872, to May 31, 1873.
Todd, John W	Major Ord		Detroit arsenal, Dearbornville, Mich.	July 1, 1872, to June 30, 1873.
Trout, John F	1st lt. 23d Inf		Camp Date Creek, Ariz	Sept. 15, 1872, to June 30, 1873.
Troxel, Thomas G	1st lt. R. Q. M. 17th Inf.		Grand River Agency, Dak.	Sept. 7 to Dec. 21, 1872.
Tyler, John	1st lt. R. Q. M. 1st Inf.	Major	Buffalo, N. Y., (depot quartermaster.)	July 1 to 16, 1872.
Do	do	do	Fort Porter, Buffalo, N. Y.	Aug. 1, 1872, to June 30, 1873.
Upham, F. K	1st lt. 1st Cav		Camp Apache, Ariz	July 1, 1872, to Apr. 30, 1873.
Vedder, S. C	2d lt. 19th Inf		Jackson Barracks, La	July 1, 1872, to May 1, 1873.
			The garrison temporarily at East Pascagoula, Miss., Camp Emory.	July 1 to Nov., 1872.
Vernon, Charles A	1st lt. 4th Cav		Escort to surveying party Texas Pacific Railroad.	July 1 to Dec. 31, 1872.
Vinal, William H	1st lt. 16th Inf		Monroe, La	June 5 to 30, 1873.
Viven, John L	1st lt. 12th Inf	Captain	Fort Yuma, Cal	Aug. 7 to Sept. 30, 1872.
Volkmar, William J	1st lt. 5th Cav		Camp Date Creek, Ariz	Aug. 31 to Sept. 15, 1872.
Vose, William P	1st lt. 2d Art	Captain	Point San José, Cal	July 1 to Nov. 16, 1872.
Do	do	do	Charlotte, N. C	March 1 to May 30, 1873.

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B.—*List of officers on duty as acting assistant quartermasters, &c.*—Continued.

Name.	Lineal rank and regiment.	Brevet rank.	Stations.	Time during year on duty A. A. Q. M.
Wallace, Thomas S..	1st lt. 3d Inf ..	.....	Fort Wallace, Kans...	July 1 to Nov. 30, 1872, and June 20 to 30, 1873.
Ward, F. K	2d lt. 1st Cav..	.....	Camp Harney, Oreg...	Jan. 1 to June 30, 1873.
Ward, H. C	1st lt. 16th Inf	Captain	Saint Augustine, Fla..	July 1 to Oct. 3, 1872, and Nov. 11 to Dec. 12, 1872.
Ward, Thomas.....	1st lt. 1st Art..	...do	Fort Ontario, N. Y	Oct. 1 to Nov. 1, 1872.
Warrens, Charles H..	1st lt. R. Q. M. 14th Inf.	.....	Fort Laramie, Wyo ...	April 25 to June 30, 1873.
Weir, G. V.....	1st lt. 5th Art .	Captain	Fort Preble, Me.....	April 1 to June 30, 1873.
Wells, Daniel T.....	1st lt. 8th Inf..	Major...	Battalion 8th and 9th Infantry, Yellowstone expedition.	June, 1873.
Wenie, Thomas M ...	2d lt. 19th Inf ..	.....	Colfax, La	April 22 to May —, 1873.
Do.....	....do	.....	Alexandria, La.....	May — to June 30, 1873.
Wesendorff, Max	1st lt. 1st Cav ..	.....	Fort Whipple, Ariz...	July 1 to Oct. 1, 1872.
Wetmore, Oliver, jr ...	1st lt. 19th Inf.	.....	Det. 19th Infantry, La	Oct. 24 to Nov. 16, 1872.
Wetmore, William B.	2d lt. 6th Cav..	.....	Fort Wallace, Kans...	Feb. 8 to June 20, 1873.
Wheeler, H. A	2d lt. 25th Inf ..	.....	Fort Bliss, Tex	July 1 to Sept. 30, 1872.
Whitall, S. R.....	2d lt. 16th Inf ..	.....	Humboldt, Tex	July 1, 1872, to June 30, 1873.
Whitehead, F. F	1st lt. 18th Inf.	Major...	Yorkville, S. C	July 1, 1872, to June 30, 1873.
Whittemore, J. M	Captain Ord ..	Major...	Kennebec arsenal, Augusta, Me.	July 1, 1872, to June 30, 1873.
Wiating, O. L	2d lt. 23d Inf ..	.....	Fort Whipple, Ariz...	Feb. 1 to June 30, 1873.
Willard, Wells.....	1st lt. 5th Art .	Captain	Plattsburgh Barracks, N. Y.	Jan. 1 to June 30, 1873.
Willey, Thomas M ...	2d lt. 6th Inf ..	.....	Fort McKean, Dak....	July 1 to Nov. 19, 1872.
Do.....	....do	.....	Nov. 19 changed to Fort Abraham Lincoln.	Nov. 19, 1872 to June 30, 1873
Williams, William M.	2d lt. 19th Inf .	.....	Holly Springs, Miss...	July 1 to Dec. 11, 1872.
Do.....	....do	.....	A. A. Q. M. of troops in and around New Orleans, La.	Dec. 20, 1872, to Mar. 28, 1873.
Do.....	....do	.....	Saint Martinsville, La.	June 1 to 30, 1873.
Wilson, D. B.....	1st lt. 25th Inf.	.....	Fort Stockton, Tex ...	July 1 to 31, 1872.
Do.....	....do	.....	Fort Gibson, Ind. T ...	Nov. 1, 1872, to Feb. 28, 1873.
Winchester, H. F.....	1st lt. 6th Cav.	.....	Detachment 6th Cav., Wichita, Kans.	May 1 to June 30, 1873.
Winters, William H .	1st lt. 1st Cav	.....	Camp Bidwell, Cal....	July 1, 1872, to June 30, 1873
Wishart, Alexander..	1st lt. 20th Inf.	Captain	Fort Cross, Dak., (Nov. 19, changed to Fort Seward.)	July 1 to Oct. 26, 1872.
Witherill, Charles T .	1st lt. 19th Inf	.....	Greenwood station, Shreveport, La.	May 15 to June 30, 1873.
Wolfe, Nathaniel	2d lt. 2d Art...	.....	Charlotte, N. C	June 1 to June 30, 1873.
Wolfe, William V	2d lt. 2d Inf...	.....	Eutaw, Ala	Oct. 23 to Nov. 1, 1872.
Do.....	.....do	.....	Lancaster, Ky	Jan. 5 to June 30, 1873.
Wood, O. E.....	1st lt. 5th Art .	.....	Fort Sullivan, Me.....	Aug. 16 to Oct. 31, 1872, and Feb. 10 to June 30, 1873.
Wood, P. G	1st lt. 12th Inf	.....	Camp Mojave, Aris....	Dec. 1, 1872, to June 30, 1873.
Wodbury, Thos. C ..	2d lt. 16th Inf .	.....	Monroe, La	May 27 to June 5, 1873.
Worden, John L. jr...	1st lt. 1st Inf ..	.....	Madison Barracks, N. Y.	July 1 to Sept. 30, 1872.
Wright, E. M	2d lt. Ord	.....	Rock Island Arsenal, Ill.	Jan. 1 to June 30, 1873.
Wygant, Hy.....	2d lt. 24th Inf .	.....	Brazos Santiago, Tex .	Dec. 7, 1872, to April 30, 1873.
Young, R. H	2d lt. 4th Inf ..	.....	Little Rock, Ark.....	Dec. 19, 1872, to Dec. 31, 1872.
Do.....	.....do	.....	Detachment 4th Inf., in the field, Wyo.	June 1 to June 30, 1873.
Zalinski, E. L	1st lt. 5th Art.	.....	Fort Sullivan, Me.....	Nov. 1, 1872, to Feb. 10, 1873.

C.—*Stations and duties of officers of the Quartermaster's Department, July* 1, 1873.

QUARTERMASTER-GENERAL'S OFFICE.

Meigs, Bvt. Maj. Gen. Montgomery C., Q. M. Gen.; Bingham, Bvt. Brig. Gen. Judson D., Q. M.; Ludington, Bvt. Lieut. Col. Marshall I., Q. M.; McGonnigle, Bvt. Col. Andrew J., A. Q. M.

GENERAL DEPOTS ESTABLISHED BY GENERAL ORDERS NO. 32, HEADQUARTERS OF THE ARMY, APRIL 8, 1869.

New York.—Tyler, Bvt. Maj. Gen. Robert O., D. Q. M. Gen., in charge.

Philadelphia depot of the Quartermaster's Department, Pennsylvania.—Easton, Bvt. Maj.

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Gen. Langdon C., A. Q. M. Gen., in charge; Rodgers, Capt. John F., military store-keeper.

Washington, D. C.—Myers, Bvt. Brig. Gen. William, Q. M., in charge.

Jeffersonville depot of the Quartermaster's Department, Indiana.—Ekin, Bvt. Brig. Gen. James A., D. Q. M. Gen., in charge; Lee, Bvt. Lieut. Col. James G. C., A. Q. M.; Barrett, Capt. Addison, military store-keeper.

MILITARY DIVISION OF THE ATLANTIC.

Headquarters, New York City.—Tyler, Bvt. Maj. Gen. Robert O., D. Q. M. Gen., C. Q. M.

Department of the East; headquarters, New York City.—Tyler, Bvt. Maj. Gen. Robert O., D. Q. M. Gen., C. Q. M.; Montgomery, Lieut. Col. Alexander, D. Q. M. Gen., Q. M., Boston, Mass.; Moore, Bvt. Brig. Gen. Treadwell, D. Q. M. Gen., Fort Adams, R. I.; Sawtelle, Bvt. Brig. Gen. Charles G., Q. M., Philadelphia, Pa.; Eckerson, Bvt. Maj. Theodore J., A. Q. M., Fort Monroe, Va.; Potter, Capt. Reuben M., military store-keeper, on sick leave; Van Antwerp, Capt. Verplank, military store-keeper, Baltimore, Md.

Department of the Lakes; headquarters, Detroit, Mich.—Saxton, Bvt. Brig. Gen. Rufus, D. Q. M. Gen., C. Q. M.; Weeks, Bvt. Lieut. Col. George H., A. Q. M., Buffalo, N. Y.

MILITARY DIVISION OF THE SOUTH.

Headquarters, Louisville, Ky.—Ekin, Bvt. Brig. Gen. James A., D. Q. M. Gen., C. Q. M.

Department of the South; headquarters, Louisville, Ky.—Ekin, Bvt. Brig. Gen. James A., D. Q. M. Gen., C. Q. M.; Hodges, Bvt. Lieut. Col. Henry C., Q. M., Atlanta, Ga.; Bradley, Capt. George W., A. Q. M., Charleston, S. C.; Barstow, Bvt. Lieut. Col. Simon F., A. Q. M., Raleigh, N. C.

Department of the Gulf; headquarters, New Orleans, La.—Ransom, Lieut. Col. Hyatt C., D. Q. M. Gen., C. Q. M.

MILITARY DIVISION OF THE MISSOURI.

Headquarters, Chicago, Ill.—Rucker, Bvt. Maj. Gen. Daniel H., A. Q. M. G., C. Q. M.; Gilliss, Capt. James, A. Q. M., Chicago, Ill.; Grimes, Bvt. Maj. Edward B., A. Q. M., Saint Louis, Mo.

Department of the Missouri; headquarters, Fort Leavenworth, Kans.—Van Vliet, Bvt. Maj. Gen. Stewart, A. Q. M. G., C. Q. M.; Myers, Bvt. Brig. Gen. Frederick, D. Q. M. G., Santa Fé, N. Mex.; Chandler, Bvt. Col. John G., Q. M., Fort Leavenworth, Kans.; Reynolds, Bvt. Lieut. Col. Charles A., A. Q. M., Camp Supply, Ind. T.; Carling, Bvt. Lieut. Col. Elias B., A. Q. M., Sargent, Kans.; Kirk, Capt. Ezra B., A. Q. M., Fort Dodge, Kans.; Kimball, Capt. Amos S., A. Q. M., Fort Riley, Kans.; Smith, Capt. Gilbert C., A. Q. M., Fort Union, N. Mex.; Livers, Capt. John, military store-keeper, Fort Leavenworth, Kans.

Department of the Platte; headquarters, Omaha, Nebr.—Perry, Bvt. Brig. Gen. Alexander J., Q. M., C. Q. M.; Moore, Bvt. Lieut. Col. James M., Q. M., Cheyenne, Wyo.; Howell, Bvt. Maj. William T., A. Q. M., Camp Douglas, Utah; Belcher, Bvt. Maj. John H., A. Q. M., Omaha, Nebr.; Hull, Gustavus A., military store-keeper, Ogden, Utah.

Department of Dakota; headquarters, Saint Paul, Minn.—Card, Bvt. Brig. Gen. Benjamin C., Q. M., C. Q. M.; Dandy, Bvt. Brig. Gen. George B., A. Q. M., Fort Abraham Lincoln, Dak.; Baker, Capt. Edward D., A. Q. M., Yellowstone expedition; Scully, Bvt. Col. James W., A. Q. M., Fort Rice, Dak.; Foster, Bvt. Col. Charles W., A. Q. M., Yankton, Dak.; Hunt, Bvt. Lieut. Col. Thomas B., A. Q. M., Fort Seward, Dak.; Forsyth, Bvt. Maj. Lewis C., A. Q. M., Fort Ellis, Mont.; Blunt, Bvt. Col. Asa P., A. Q. M., on sick leave; Lieber, Capt. Hamilton, military store-keeper, Fort Snelling, Minn.

Department of Texas; headquarters, San Antonio, Tex.—Holabird, Bvt. Brig. Gen. Samuel B., D. Q. M. G., C. Q. M; Belger, Maj. James, Q. M., Fort Brown, Brownsville, Tex.; Robinson, Bvt. Maj. Augustus G., A. Q. M., Fort Sill, Ind. T.; Strang, Bvt. Lieut. Col. Edward J., A. Q. M., Denison, Tex.; Constable, Capt. Nathaniel S., A. Q. M., Fort Concho, Tex.

MILITARY DIVISION OF THE PACIFIC.

Headquarters, San Francisco, Cal.—Allen, Bvt. Maj. Gen. Robert, A. Q. M. G., C. Q. M.

Department of California; headquarters, San Francisco, Cal.—Eddy, Bvt. Col. Asher R., D. Q. M. G., C. Q. M.; Hughes, Capt. William B., A. Q. M., San Francisco, Cal.; Martin, Capt. William P., military store-keeper, Yerba Buena Island, San Francisco, Cal.

Department of Arizona; headquarters, Prescott, Ariz.—Dana, Bvt. Brig. Gen. James J., Q. M., C. Q. M.; Rockwell, Bvt. Lieut. Col. Almon F., A. Q. M., Yuma Depot, Ariz.; Furey, Capt. John V., A. Q. M., Tucson, Ariz.

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Department of the Columbia; headquarters, Portland, Oreg.—Batchelder, Bvt. Col. Richard N., Q. M., C. Q. M.; Janes, Bvt. Lieut. Col. Henry W., A. Q. M., Fort Vancouver, Wash.; Hoyt, Capt. H., A. Q. M., Camp Warner, Oreg.

MISCELLANEOUS.

Ingalls, Bvt. Maj. Gen. Rufus, A. Q. M. G., New York City, under orders for special duty in Europe; Tompkins, Bvt. Brig. Gen. Charles H., D. Q. M. G., under suspension, San Francisco, Cal.; Potter, Bvt. Brig. Gen. Joseph H., Q. M., on sick leave; Enos, Bvt. Col. Herbert M., Q. M., on sick leave, Waukesha, Wis.; Alligood, Capt. Charles A., military store-keeper, on leave of absence.

II.—*Report of Maj. J. D. Bingham, Quartermaster, U. S. A.*

WAR DEPARTMENT, QUARTERMASTER-GENERAL'S OFFICE,
Washington, D. C., October 2, 1873.

SIR: I have the honor to submit a report of the finance branch of this Office for the fiscal year ending June 30, 1873.

The remittances on account of appropriations have been made upon estimates of disbursing quartermasters, approved by their commanding officers, and have been distributed as follows:

To the Military Division of the Atlantic.

Department of the East	$335,267 20	
Department of the Lakes	113,605 39	
Total Military Division of the Atlantic		$448,872 59

To the Military Division of the Missouri.

Department of the Missouri	$1,024,892 80	
Department of the Platte	1,135,670 93	
Department of Dakota	854,154 35	
Department of Texas	1,748,234 29	
District of New Mexico	451,308 25	
Depot at Chicago	499,756 46	
Depot at Saint Louis	516,116 71	
Total Military Division of the Missouri		6,230,133 79
To the Military Division of the Pacific		3,066,342 37

To the Military Division of the South.

Department of the South	$695,792 61	
Department of the Gulf	324,262 03	
Total Military Division of the South		1,020,054 64

To the principal depots.

New York	$349,760 33	
Washington	726,071 52	
Philadelphia	1,108,110 20	
Jeffersonville	180,353 79	
Total to principal depots		2,364,295 84
To officers in immediate charge of national cemeteries		137,004 85

To independent posts.

West Point, N. Y	$44,905 74	
Springfield Armory, Mass	2,431 68	
Fort Columbus, New York Harbor	826 50	
Cavalry depot, Saint Louis, Mo	3,800 93	

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Newport Barracks, Ky	$7,551 37	
Columbus arsenal, Ohio	1,223 50	
Indianapolis arsenal, Ind	789 10	
Watertown arsenal, Mass	11,838 60	
Allegheny arsenal, Pa	2,557 00	
Watervliet arsenal, N. Y	10,261 25	
Frankford arsenal, Pa	200 00	
Pikesville arsenal, Md	317 11	
Augusta arsenal, Ga	2,337 30	
Kennebec arsenal, Me	805 93	
Benicia arsenal, Cal	4,148 73	
Detroit arsenal, Mich	892 46	
Rock Island arsenal, Ill	3,597 68	
Total to independent posts		$98,484 88
Total amount remitted		13,365,188 96

Remittances from the appropriation for the fiscal year ending June 30, 1873, have been made as follows, viz:

Regular supplies.

Fuel	$1,128,958 68	
Forage	3,197,430 06	
Straw	84,801 60	
Stationery	94,894 89	
Stoves	88,615 23	
Total regular supplies		$4,594,700 46
Incidental expenses		1,300380 48
Horses, cavalry and artillery		292, 71454

Barracks and quarters.

Rent of quarters for officers	$323,092 10	
Rent of store-houses, offices, commutation of quarters for enlisted men	312,318 03	
Building-material for repairs	550,161 64	
New buildings authorized	281,356 26	
Total barracks and quarters		1,466,928 03
Army transportation		4,325,601 99
Clothing and equipage		858,412 07
National cemeteries		250,729 70
Hospitals		84,526 51
Stoves		10,000 00
Preservation of clothing and equipage from moth and mildew		150,000 00
Mojave claims, (special appropriation)		14,219 00
Headstones		16,133 75
Expenses of sales		842 43
Total amount remitted		13,365,188 96

The duties performed in this branch have embraced action on estimates of funds; the preparation of requests for remittances to disbursing officers; action on weekly statement of balances of funds in the hands of disbursing officers, and action on certificates of deposit.

Very respectfully, your obedient servant,

J. D. BINGHAM,

Bvt. Brig. Gen. and Quartermaster, U. S. A.

The QUARTERMASTER-GENERAL.

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III.—*Report of Maj. J. D. Bingham, quartermaster, U. S. A.*

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE,
Washington, D. C., October 1, 1873.

GENERAL: I have the honor to submit the following report of operations of the accounts branch of this Office for the last fiscal year:

Appropriations for periods prior to July 1, 1870.

On July 1, 1872, the balance of appropriations of the Quartermaster's Department in the Treasury, for years prior to July 1, 1870, undrawn, was, by report of last year		$2,290,164 71
Amount placed to the credit of appropriations during the year by deposits of funds for redistribution, and of amounts received from sales to officers of public property purchased prior to July 1, 1870		373,035 81
Amount expended for other departments, prior to July 1, 1870, and refunded by them during the last fiscal year		424,428 85
Total		3,087,629 37
Requisitions on settlements made at the Treasury of claims and accounts		1,449,743 37
Balance to the credit of appropriations for periods prior to July 1, 1870, remaining in the Treasury June 30, 1873		1,637,886 00

Appropriations for the fiscal year ending June 30, 1871.

Balance in the Treasury July 1, 1872		$272,862 25
Amount placed to the credit of appropriations during the year, by deposits of funds for redistribution, and of amounts derived from sales to officers of public property purchased during the year ending June 30, 1871.		8,374 55
Amount expended for other departments during the fiscal year ending June 30, 1871, and refunded by them during the last fiscal year		33,838 70
Total		315,075 50
Remitted to disbursing officers during the year on requests of the Quartermaster-General	$550 65	
Requisitions on settlements made at the Treasury of claims and accounts	55,019 45	
		55,570 10
Balance in the Treasury June 30, 1873		259,505 40

Appropriations for the fiscal year ending June 30, 1872.

Balance in the Treasury July 1, 1872, of amounts appropriated by acts of Congress approved March 3, 1871, and May 18, 1872		$99,863 39
Appropriation for deficiencies, act of Congress approved March 3, 1873		1,110,000 00
Transportation of insane volunteers, act of Congress approved May 18, 1872		1,000 00
Amount placed to the credit of appropriations during the year by deposits of funds for redistribution, and of amounts derived principally from sales to officers of public property purchased during the year ending June 30, 1872		331,024 32
Amount expended for other departments during the fiscal year ending June 30, 1872, and refunded during the last fiscal year		21,199 92
Total		1,563,087 63
Remitted to disbursing officers during the year on requests of the Quartermaster-General	$148,296 84	
Requisitions on settlements made at the Treasury of claims and accounts	384,078 67	
		532,375 51
Balance in the Treasury July 1, 1873		1,030,712 12

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Appropriations for the fiscal year ending June 30, 1873.

Appropriations for fiscal year		$12,114,219 00
Appropriations for deficiencies, act of March 3, 1873		1,570,000 00
So much of the $200,000 appropriated by the act of March 3, 1873, for preservation of clothing and equipage from moth and mildew during the year ending June 30, 1874, as was used during the year ending June 30, 1873, the appropriating act rendering it available in that year		150,000 00
Amount placed to the credit of appropriations during the year by deposits of funds for redistribution, and of amounts derived principally from sales to officers of public property purchased during the year ending June 30, 1873		16,114 56
Amount expended for other departments and refunded by them during the fiscal year		25
Total		13,850,333 81
Remitted to officers for disbursement on requests of the Quartermaster-General	$13,365,188 96	
Requisitions on settlements made at the Treasury of claims and accounts	22,032 52	
Transferred to the Ordnance Department for the manufacture of knapsacks, haversacks, canteens, and great-coat straps	41,953 33	
		13,429,174 81
Balance in Treasury June 30, 1873		421,159 00

The accounts and vouchers which have been examined in this Office since the last annual report show disbursements as follows:

On account of appropriations for years prior to the fiscal year ending June 30, 1872	$1,843,605 13
For the fiscal year ending June 30, 1872	8,041,800 03
For the fiscal year ending June 30, 1873	5,638,632 94
Total	15,524,038 10

Appropriations are charged with these disbursements as follows:

1.—*Appropriations for the Quartermaster's Department.*

	Prior to July 1, 1871.	Fiscal year 1871–'72.	Fiscal year 1872–'73.	Total.
Regular supplies	$376,804 66	$2,940,066 23	$2,182,432 29	$5,499,303 18
Incidental expenses	165,975 38	903,317 10	705,951 31	1,775,243 79
Purchase of cavalry and artillery horses	375 00	181,229 23	47,391 00	229,595 23
Barracks and quarters	295,676 75	1,081,257 06	793,619 19	2,170,553 00
Army transportation	959,684 96	2,213,396 60	1,347,823 06	4,520,904 62
Mileage—transportation of officers' baggage	486 39			486 39
Purchase—manufacture and preservation of clothing, camp and garrison equipage	10,499 36	491,445 92	413,158 29	915,103 57
Purchase of stoves	18,145 31	16,593 65	10,527 55	45,266 51
National cemeteries	8,900 32	156,456 29	62,921 62	228,278 23
Hospitals			8,224 93	8,224 93
Headstones			1,814 00	1,814 00
Total	1,836,548 13	7,984,362 08	5,573,863 24	15,394,773 45

2.—*Special appropriations and expenditures for other Departments.*

	Prior to July 1, 1871.	Fiscal year 1871–'72.	Fiscal year 1872–'73.	Total.
Fire-proof buildings		$51,584 12	$64,269 70	$115,853 82
Army contingencies	$142 50	719 82	500 00	1,362 32
Pay Department	1,555 26	978 07		2,533 33
Subsistence Department	2 25	2 25		4 50
Medical Department	782 43	1,900 72		2,683 15
Ordnance Department		56 00		56 00
Indian Department	4,574 56	2,112 65		6,687 21
Soldiers' Home		84 32		84 32
Total	7,057 00	57,437 95	64,769 70	129,264 65

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The following tables exhibit the number of money accounts and property returns on hand at the commencement of the fiscal year, the number received and examined during the year, and the number remaining on hand unexamined at the close of the year:

Money accounts.

	For what calendar year.								
	1861.	1862.	1863.	1867.	1870.	1871.	1872.	1873.	Total.
On hand July 1, 1872	.....	.....	.....	.....	.....	2,242	1,185	.....	3,427
Received during the year	1	8	4	3	1	25	1,858	1,151	3,051
Total	1	8	4	3	1	2,267	3,043	1,151	6,478
Examined during the year	1	8	4	3	1	2,267	2,416	.....	4,700
On hand unexamined July 1, 1873	.....	.....	.....	.....	.....	.....	627	1,151	1,778

Property returns.

	For what calendar year.												
	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	Total.
On hand July 1, 1872	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,716	821	.....	2,537
Received during the year	2	7	9	14	4	1	2	1	3	22	62	2,524	885	3,536
Total	2	7	9	14	4	1	2	1	3	22	1,778	3,345	885	6,073
Examined during the year	2	7	9	14	4	1	2	1	3	22	1,778	3,053	.....	4,896
On hand unexamined July 1, 1873	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	292	885	1,177

During the year two hundred and eight settlements have been made of officers' accounts under the act of June 23, 1870. The amount allowed by such settlement is $127,354.57.

The number of clerks employed in the accounts branch at the date of the last report was as follows: one of class 4, five of class 3, six of class 2, and forty-four of class 1; total, 56. The number now employed is as follows: one of class 4, four of class 3, six of class 2, and thirty-eight of class 1; total, 49.

The number of money accounts and property returns examined during the fiscal year is less than the number examined during the previous year. This is due to the increased work of examination, the increased number of settlements, under the act of Congress of June 23, 1870, and the transfer of a portion of the force to other branches of the office.

At this date I can say that all accounts and returns for years prior to 1873 have been examined; nearly all the accounts and returns for the first quarter 1873 have been examined; those of the second quarter are in the hands of the examiners, and the examination of those for the third quarter will be commenced before all are received from officers. The work of examination is, therefore, as near up to date as it can be.

Checks are now provided in this branch, by which double payments of accounts can be detected, except in the case of transportation accounts paid on bills of lading. When payment was made on the original bill of lading only, no other check was necessary; but now payment

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can be made on the duplicate in case of loss of the original, and a double payment for the same service might pass the examination of this branch without detection.

It is suggested that officers who issue bills of lading be required to number them, and to enter on their "report of persons and articles hired" the number of each bill issued; name of carrier; destination; name of consignee; character and weight of articles, or any similar data by which the bills, when received here, can be identified.

Under section 2 of the act of February 12, 1868, a disbursing officer cannot use money appropriated for one purpose for any other. And under section 5 of the act of July 12, 1870, the appropriation made specifically for the service of any fiscal year can only be applied to the payment of expenses properly incurred during that year. These two laws, together with the custom that has grown up in this office of increasing the number of heads of appropriation, are now the cause of much embarrassment to the administration of the affairs of the Quartermaster's Department.

The following table shows the balances of appropriations undrawn by the Quartermaster's Department, July 1, 1873. They are embraced under fifteen different heads, and the accounts with them are kept in five sets of books. Each year adds another set of books in which another account is opened generally with the same heads of appropriation as in the previous year. In time the system will confuse and embarrass the records and business of this office:

Balances of appropriations undrawn by the Quartermaster's Department, July 1, 1873.

	Prior to July 1, 1870.	1870–'71.	1871–'72.	1872–'73.	1873–'74.
Regular supplies	$363,400 86	$82,068 05	$89,263 98	$1,688 55	$4,500,000 00
Incidental expenses	154,582 71	63,330 62	128,223 05	3,813 40	1,300,000 00
Purchase of horses	51,773 50	13,231 20	22,109 73	7,092 96	350,000 00
Barracks, quarters, &c	125,124 02	45,075 91	79,902 32	32,952 33	1,700,000 00
Transportation of the Army	801,844 32	8,597 38	684,684 14	156,541 92	4,492,096 50
Transportation of officers' baggage	29,882 66				
Clothing of the Army	76,312 66	47,180 55	26,498 90	4 53	1,045,037 92
Stoves	34,493 27	21 60	40 00		
National cemeteries					275,000 00
Clocks for permanent posts	522 00				
Hospitals				15,473 49	100,000 00
Expenses of sales				9,157 57	
Headstones				183,866 25	1,000,000 00
Monument at Salisbury, N. C				10,000 00	
Preservation of clothing					50,000 00
Total	1,637,936 00	259,505 40	1,030,712 12	421,191 00	14,812,134 42

There are now nine appropriations which are disbursed by the Quartermaster's Department, viz: regular supplies; incidental expenses; cavalry and artillery horses; barracks and quarters; transportation of the Army; clothing and equipage; erection and repair of hospitals; national cemeteries, and headstones for soldiers' graves.

Some quartermasters draw money from all of these appropriations; nearly all draw from four of them, to wit: for regular supplies, incidental expenses, barracks and quarters, and transportation of the Army.

Each officer doing duty in the Quartermaster's Department is required to make, monthly, an estimate of the funds required during the ensuing month, setting forth the exact number of men and animals for which he has to provide, the articles he requires, with the cost of each, and the persons and articles he must employ, with the rate of pay, and the total amount of money he requiries from each appropriation. When the money is received

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he must expend it for the purposes for which he asked it, and for no other. He cannot, even temporarily, use money appropriated for transportation for paying for fuel. This often causes great embarrassment, as the exigencies of the service are constantly changing. An officer who makes an estimate of funds required for an ensuing month finds, when the money is received, that his wants are entirely different from what he expected they would be when he made the estimate. He asked, perhaps, for money to erect temporary shelter for troops, and has received it; but instead of going into quarters the troops are on the march, and instead of a sheltering fund he wants transportation money, of which he has none on hand. As he cannot use the sheltering funds on hand, great embarrassment ensues.

The quartermaster of a post garrisoned by infantry, where there are from four to six public animals, asks and receives funds to supply their wants. Suddenly and unexpectedly the garrison is increased by the arrival of cavalry. Forage, horse-shoes, horse medicines, &c., are wanted at once. The quartermaster has no funds to buy them with, and does not know whether any such funds are in the Treasury; therefore he cannot buy for cash and dare not buy on credit, as the law forbids any expenditure beyond the appropriation.

As the fiscal year draws to a close, and some of the appropriations are entirely drawn out of the Treasury, some of the officers of the Quartermaster's Department will have expended all of the funds in their hands belonging to such appropriations, while others will have a surplus; this necessitates transfers from one officer to another, often far apart and with infrequent means of communication. As the year draws still nearer to a close, the number of such transfers increases, until all the accounts are paid or the appropriations are exhausted.

Great delays in the payment of accounts frequently occur under the present system, which tend to increase the expenses of the department and oppress the creditors of the Government.

The same not only applies to a portion of the Army, but to it as a whole, as is shown by the condition of the appropriations for the last two fiscal years, during which the present system of accounts has been in operation. During the fiscal year 1871–'72, the expenses for barracks and quarters and incidental expenses were greater than anticipated, and notwithstanding the most earnest efforts to prevent it, those appropriations were exceeded. Last year the expenses on account of clothing, stoves, barracks and quarters, and incidental expenses were considerably greater than was anticipated when the estimate was made, and as a consequence the Department had no funds for supplying suitable clothing to the Army toward the close of the year, or for the purchase of stoves.

The present system of making estimates upon which the appropriations are based is one of long standing in the Quartermaster's Department; it is one that it is not thought best to change, as it is doubtless well for a department to send to Congress as detailed an estimate as possible.

In 1836 there were four appropriations for the Quartermaster's Department, viz, for clothing, various expenses, allowance to officers for transportation of their baggage, and for the transportation of troops. In 1837 the number of appropriations was increased by Congress to six, viz, clothing, regular supplies, barracks and quarters, transportation of troops, and incidental expenses. In 1848 the number of appropriations was increased by Congress to seven, a separate item being made for

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cavalry and artillery horses, which had previously been included in the appropriation for incidental expenses.

But never, until July, 1870, were officers required to keep separate accounts with each appropriation. Officers in the field estimated for such amount of funds as they supposed they would want; the money was drawn from the Treasury and sent to them in a lump; and they used it without regard to—in fact did not know—the appropriation from which it was drawn. As long as the money held out they paid all proper expenses. When their accounts were rendered to the Quartermaster-General and the accounting-officers of the Treasury Department they were analyzed, and the amounts chargeable against the several appropriations noted on the vouchers, and entered on the books at the Treasury. It is true that under such a system of disbursement some appropriations might be overdrawn; but as the President then had power to transfer from one appropriation to another in the same department, the deficiency in one was made good by the surplus of another, so that no law was violated, the wants of the service were well supplied, and the total expenditure did not exceed the amount appropriated.

The power of the President to transfer from one appropriation to another, conferred by the act of March 3, 1809, was taken away by the act of February 12, 1868, and the Quartermaster's Department cannot return to the old system of disbursing without some authority of law.

Some relief from the present condition of affairs is demanded by the necessities of the service. The Department is now bound to disburse its money in strict conformity to the appropriations based on estimates made ten months before the year during which the money is to be expended begins. If the Army were a stationary force its expenses could be calculated beforehand in detail with a reasonable degree of certainty; but such is not the case.

The necessity of keeping, whenever possible, in the hands of each disbursing-officer, or subject to his draft, a considerable balance of each appropriation which he is likely to use, instead of a general balance applicable to all, increases the amount of money lying idle in the depositories, and subject to draft by disbursing-officers, and thus increases the remittances to them and lowers the balances in the Treasury available for remittances to the posts where actually needed.

The embarrassments indicated may be removed in two ways. First, by a slight change in making out the annual estimate of appropriations required for the Quartermaster's Department. Instead of appropriating for each head, as at present, arrange them as follows:

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For general and incidental expenses of the Quartermaster's Department, to wit:	Dates of acts, resolutions, &c., authorizing or providing for the expenditure.	Reference to Statutes at Large, (Little, Brown & Co.'s edition.)	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1874.
		Vol. p. sec.			
For purchase of stoves for heating and cooking, of fuel for officers, enlisted men, guards, hospitals, store-houses, and offices; of forage in kind for the horses, mules, and oxen of the Quartermaster's Department at the several posts and stations, and with the armies in the field; for the horses of the several regiments of cavalry, the batteries of artillery, and such companies of infantry and scouts as may be mounted; and for the authorized number of officers' horses, including bedding for the animals; of straw for soldiers' bedding; and of stationery, including blank books for the Quartermaster's Department, certificates for discharged soldiers, blank forms for the Pay and Quartermaster's Departments, and for printing of division and department orders and reports.	Mar. 28, 1812 May 22, 1812 July 17, 1862 Jan. 31, 1868 Revised Army Regulations, 1863, p. 159.	2 696 3 2 743 3 12 594 2 15 246 8	$5,000,000 00	.....	.....
For postage and telegrams or dispatches; extra pay to soldiers employed, under the direction of the Quartermaster's Department, in the erection of barracks, quarters, store-houses, and hospitals, in the construction of roads, and other constant labor, for periods of not less than ten days, under the act of March 2, 1819, and August 4, 1854, including those employed as clerks at division and department headquarters; expenses of expresses to and from the frontier posts and armies in the field, of escorts to paymasters and other disbursing officers, and to trains where military escorts cannot be furnished; expenses of the interment of officers killed in action, or who die when on duty in the field, or at posts on the frontiers, or at posts and other places, when ordered by the Secretary of War, and of non-commissioned officers and soldiers; authorized office furniture; hire of laborers in the Quartermaster's Department, including the hire of interpreters, spies, and guides for the Army; compensation of clerks to officers of the Quartermaster's Department; compensation of forage and wagon masters, authorized by the act of July 5, 1838; for the apprehension of deserters and the expense incident to their pursuit; and for the following expenditures required for the several regiments of cavalry, the batteries of light artillery, and such companies of infantry and scouts as may be mounted, namely: the purchase of traveling forges, blacksmiths' and shoeing tools, horse and mule shoes and nails, iron and steel for shoeing, hire of veterinary surgeons, medicines for horses and mules, picket-ropes, and for shoeing the horses of the corps named; also, generally, the proper and authorized expenses for the movement and operations of an army not expressly assigned to any other department.	Mar. 2, 1819 Aug. 4, 1854 Mar. 16, 1802 July 13, 1866 Revised Army Regulations, p. 159, par. 1065. Mar. 3, 1813 July 5, 1838 Mar. 28, 1812	3 488 1 10 576 6 2 132 21 14 93 7 2 820 8 5 257 10 2 696 3	1,300,000 00	.....	.....
For purchase of horses for the cavalry and artillery, and for Indian scouts, and for such infantry as may be mounted.	Army Regulations, p. 159, par. 1064.	.....	500,000 00	.....	.....

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Quartermaster's Department—Continued.

For general and incidental expenses of the Quartermaster's Department, to wit:	Dates of acts, resolutions, &c., authorizing or providing for the expenditure.	Reference to Statutes at Large, (Little, Brown & Co.'s edition.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1874.
		Vol. p. sec.			
For transportation of the Army, including baggage of the troops, when moving either by land or water; of clothing, camp and garrison equipage from the depots of Philadelphia and Jeffersonville to the several posts and army depots, and from those depots to the troops in the field; of horse-equipments and of subsistence stores from the places of purchase, and from the places of delivery under contract, to such places as the circumstances of the service may require them to be sent; of ordnance, ordnance stores, and small-arms from the founderies and armories to the arsenals, fortifications, frontier posts, and army depots; freights, wharfage, tolls, and ferriages; the purchase and hire of horses, mules, oxen, and harness, and the purchase and repair of wagons, carts, and drays, and of ships and other sea-going vessels; and boats required for the transportation of supplies and for garrison purposes; for drayage and cartage at the several posts, hire of teamsters, transportation of funds for the pay and other disbursing departments; the expense of sailing public transports on the various rivers, the Gulf of Mexico, and the Atlantic and Pacific; for procuring water at such posts as, from their situation, require it to be brought from a distance; and for clearing roads and removing obstructions from roads, harbors, and rivers to the extent which may be required for the actual operations of the troops in the field.	Mar. 3, 1813 Jan. 31, 1862 Revised Army Regulations, p. 159, par. 1064; and p. 163, par. 1096.	2 817 5 12 334 4	$4,500,000 00		
For hire of quarters for officers on military duty, hire of quarters for troops, of store-houses for the safe-keeping of military stores, offices, and of grounds for camps and for summer cantonments, and for temporary frontier stations; for the construction of temporary huts and stables, and for repairing public buildings at established posts.	Revised Army Regulations, p. 159, par. 1066. Act of May 18, 1872.	17 260 1	2,000,000 00		
For construction and repair of hospitals, as reported by the Surgeon-General of the Army..	Appropriated.	17 260 1	150,000 00	$13,450,000 00	$12,450,000 00
For clothing and equipage:					
For purchase and manufacture of clothing, camp and garrison equipage, and for preserving and repacking stock of clothing, camp and garrison equipage, and materials on hand at the Philadelphia and other depots of the Quartermaster's Department.	May 18, 1826. Revised Army Regulations, p. 159, par. 1064.	4 173 1	1,700,000 00		
For preservation of clothing and equipage from moth and mildew, by the process of G. E. Cowles & Co., heretofore adopted and now in use.	Act of Mar. 3, 1872, chap. 229, p. 546.	.....	100,000 00	1,800,000 00	1,523,508 81
For establishing and maintaining national military cemeteries.....	Feb. 22, 1867	14 399 16	.....	275,000 00	275,000 00
Total.....		.....	.....	15,525,000 00	14,248,508 81

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This will reduce the number of heads of appropriation to three, while the estimate, in all its details, is made precisely as heretofore.

Another method is by the passage of a law relieving disbursing officers of the Quartermaster's Department from the necessity of keeping separate and distinct accounts with each branch of the appropriation for the annual service of the Quartermaster's Department.

The change in the estimate may be made, I think, without recourse to law, as the system grew up in this Office without the requirement of law.

Very respectfully, your obedient servant,

J. D. BINGHAM,
Bvt. Brig. Gen. and Q. M., U. S. A.

The QUARTERMASTER-GENERAL OF THE ARMY.

IV.—*Report of Maj. J. D. Bingham, quartermaster, U. S. A.*

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE,
Washington, D. C., October 2, 1873.

GENERAL: I have the honor to submit the annual report of the clothing branch of this Office for the fiscal year ending June 30, 1873.

The work connected with this branch of the Office has been as follows: Supplying clothing and camp and garrison equipage to the Army of the United States; the manufacture and purchase of such articles as were not on hand and required; the preservation of the large supplies of woolen garments, and materials for the manufacture of clothing, in store at the principal clothing depots; the sale of such articles of clothing and equipage as had become unserviceable and damaged being part of the large stock left on hand at the close of the late war; the examination and settlement of officers' clothing accounts, and examination of claims for clothing furnished to the United States forces during the war of the rebellion, not heretofore acted upon or presented to this Office.

The President of the United States having approved the recommendations of a board of officers convened by order of the Secretary of War to adopt a new uniform for the Army of the United States, this Office, in obedience to instructions from the War Department, made preparations to manufacture and purchase a complete outfit of the new uniform for the 30,000 enlisted men comprising the Army, with a view of having it ready for distribution on the 1st of December last. The appropriation not being sufficient for the purpose, the issue was postponed until the appropriation of this fiscal year should become available. In the mean time preparations were made for commencing the distribution of the clothing in July last, and nearly all the troops have now been supplied with the new uniform.

The regulations for the new uniform require that all troops shall wear the mounted overcoat. The stock of great-coats mounted being limited, the obtaining of a supply for foot-troops became necessary.

To prevent a loss to the Government, and with a view to utilizing the large supply of great-coats (foot) on hand, the Quartermaster-General recommended the issue of these overcoats after attaching to them mounted capes. The Secretary of War having approved the recommendation, these great-coats have since been issued with double capes,

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and the result thus far shows that this arrangement has been of benefit to the Government, as well as to the enlisted men of the Army.

The iron bunks adopted for use of the Army have been supplied to nearly all the military posts. They appear to give general satisfaction. Thirty-four officers have reported upon them favorably, and nine unfavorably, the latter principally from a misunderstanding of the purpose of the bunk. Complaint having been made that the pine slats split too easily, instructions have been given to manufacture them of hard wood, such as oak or ash.

The brass-screwed boots and bootees heretofore issued in limited quantities are now being purchased and distributed to the whole Army. Sixty-two officers of the Army have, in their annual reports for the fiscal year, reported on them favorably; one thinks sewed shoes are better for the sand; and another that the soles should be of hemlock-tanned sole-leather.

The stock of blankets, stockings, and boots and shoes left on hand at the close of the war has become exhausted, or unserviceable from long storage. In procuring new supplies of blankets and stockings by contract, much difficulty has been experienced in obtaining articles of good quality, and equal to the standard.

The stock of dark-blue cloth and light-blue kersey will be so nearly exhausted this year that it will be necessary to purchase a supply next year.

In view of the difficulty of procuring articles of standard quality, I recommend that a few officers of the Quartermaster's Department be assigned to duty at the Philadelphia clothing depot, where most of the large contracts for clothing are made, in order that they may qualify themselves for the duty of inspecting the manufacture of such fabrics and articles as are contracted for at that depot. They should be furnished with necessary facilities; and when large contracts, such as for blankets, stockings, cloth, tents, &c., are given out, they should be assigned to the duty of watching the process of manufacture, in order to secure compliance with contracts, and insure the furnishing of articles equal to the standard.

After the officers first detailed for this duty become proficient, they should be replaced by others. By continuing this system the Department will always be supplied with officers capable of superintending the manufacture of the most important articles of the uniform.

I desire to call the attention of the Quartermaster-General to the following extracts from the annual report of Capt. John F. Rodgers, military store-keeper, United States Army, at the Philadelphia depot of the Quartermaster's Department, for the fiscal year ending June 30, 1873:

> The new uniform is in process of manufacture, and will shortly be issued. It is, in quality, appearance, and workmanship, vastly superior to the old. None but good cloth has been used, and the prices paid for making it have been sufficient to insure good work. The patterns are all better than those formerly used, and if the Army complains, the Quartermaster's Department need feel no remorse. The boots and bootees are unexceptionable; the iron bunks excellent. The foot dress-caps are admirable. I think, however, that the helmet needs some alterations to make it what is desired. The shell, *i. e.*, the felt, is almost too light; the disk on the crown should be broader to bear the heavy strain of the spear, plume, and socket, and the binding should be heavier and broader. It is the most sightly head-gear I have ever seen, but needs, in my opinion, the above.
>
> The uniform dress-coats are well made, of good shape, and will, I think, give satisfaction. One objection has already arisen, and will doubtless continue to be made. The "facings" are of bright cloth, beautiful at first, but likely to lose its freshness upon exposure. As some reports upon this subject are probable, I deem it proper to say that I have for several months been trying experiments with these cloths.

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I have found *none*, either foreign or domestic, that are not fugitive in color. They all fade. The facing-cloth used for the present uniform is the best I have tried. It was purchased before I came to Philadelphia, and my experiments are disinterestedly impartial.

A new overcoat, or rather an adaptation of the old, has just been introduced in the Army from a design of the Quartermaster-General. It is an admirable garment, and should, and doubtless will, give great satisfaction to the Army.

Efforts have been made, and are still making, to raise the standard of all clothing and equipage to what it should be, and I think with success. I believe the issue will now compare favorably with those of former years, even to that "good old time" before the war.

The stock of woolen materials at this depot, and at Jeffersonville also, has been treated by the "Cowles & Co. process." The result is yet to be seen. I trust that it will prove of great service.

The $\frac{4}{4}$ dark-blue cloth will, in all probability, be exhausted within the coming year. I most respectfully recommend that sufficient time be taken to secure a good quality. It is the most expensive and requires more care in purchasing and inspecting than any other.

The $\frac{4}{4}$ sky-blue kersey will also be exhausted within a year in all probability. I do not think it will be necessary to purchase any of this width until the $\frac{3}{4}$ sky-blue kersey is exhausted Of the latter a sufficient quantity remains to make all the trousers and capes to overcoats that will be required during the present year. Of $\frac{4}{4}$ and $\frac{3}{4}$ dark-blue flannel enough remains to last at least two years.

All of the above has been carefully overhauled; the unserviceable laid aside for condemnation, and the balance carefully baled.

I again most respectfully call your attention to the careless estimates made by requiring officers. Requisitions for clothing are made apparently at hap-hazard, and often the sizes of boots, hats, caps, &c., are glaringly improper and incorrect.

One officer wanted, in an estimate for 499 pairs of bootees, $\frac{3}{7}$, $\frac{4}{1}$, $\frac{2}{12}$, $\frac{8}{3}$, $\frac{7}{4}$, and this for white troops. In 600 forage-caps he asks for $1\frac{3}{4}$, $1\frac{1}{2}$, and so through his estimate. This is but one of many, and causes the issuing officer great trouble and perplexity. A reference to the schedule of sizes will show how they should be issued. It also gives the purchasing officer great trouble, for it is impossible to obtain correct sizes to fit such estimates.

I respectfully recommend that a moderate proportion of coats, blouses, and overcoats be sent unmade. I believe it would save money to the Treasury and to the soldier, and prove satisfactory to all parties concerned.

Officers often expect to find clothing made similar to "custom-work," and not finding it, at once commence a crusade against the Quartermaster's Department, and particularly against the clothing branch.

The packing of clothing has been greatly improved within the last year. Dress-coats, boots, bootees, helmets, dress-caps, and forage-caps are boxed. Trousers, blouses, stable-frocks, shirts, bed-sacks, &c., are baled. The baling is much improved. A better quality of canvas is used, and it has two coats of paint given it before the bale is made. Such bales will bear rough carriage well, and, if exposed to rain or moisture, will keep their contents dry.

The expenditures on account of the moth and mildew proof process of Geo. A. Cowles & Co. during the fiscal year have been $350,000. This includes $200,000 appropriated for the current fiscal year, but made available for expenditure during last fiscal year. To prepare such articles of woolen and cotton fabrics on hand as have not yet been submitted to the process, an additional sum of $100,000 has been asked in the estimate for the coming fiscal year.

The appropriation for clothing and equipage for the past fiscal year was $900,000; $369.93 were deposited by officers to the credit of the appropriation, making a total of $900,369.93.

The expenditures on account of clothing and equipage during the same period were $858,412.07. The sum of $41,953.33 was transferred on the books of the Treasury to the appropriation for ordnance and ordnance stores, being the amount appropriated for the purchase of knapsacks and haversacks, which are now furnished to the Army by the Ordnance Department.

During the past fiscal year $456,986.82 were realized from sales of clothing and equipage, including $18,832.56 from sales of clothing, &c., to officers of the Army for their personal use.

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To supply the Army with the necessary clothing and equipage during the coming fiscal year, it is estimated that an appropriation of $2,000,000 will be required. The large quantities of clothing rendered surplus by the adoption of the new uniform will be sold under the law of March 3, 1873, at public auction. The clothing on hand at the Philadelphia depot will be disposed of at auction on the 2d of October, (to-day,) and all the obsolete clothing in possession of officers at the various posts, garrisons, depots, &c., in the United States, will be disposed of in like manner as required by law.

The gross proceeds of these sales will be covered into the Treasury of the United States.

The large quantity of unserviceable clothing in store at the depot at Jeffersonville, Ind., will, under the orders of the Secretary of War, be kept in store till next year, in order to avoid throwing on the market at this time more property than can be disposed of with advantage to the Government.

It is expected that more money will be realized from these sales than will be required to supply the Army with the necessary clothing during the coming year.

Measures have been taken to embrace in the next annual report a complete statement of the number of articles sold under the law referred to, as well as the amounts obtained and turned into the Treasury.

Congress having by the passage of the act of January 21, 1873, granted to each of the inmates of the National Home for Disabled Volunteers one complete suit of clothing, the Secretary of War, at the request of the Hon. B. F. Butler, president of the board of managers, authorized the issue to the Home, in lieu of clothing, of an equivalent from the old stock of pegged bootees on hand. These bootees had, by long storage, become unfit for issue to troops in active service. The issue to the Home amounted to 151,249 pairs.

Twelve claims for clothing and equipage, amounting to $19,678.42, were received during the past fiscal year.

Six claims were referred to the Third Auditor of the Treasury with recommendation for settlement, amounting to $5,792.10.

Three claims, amounting to $8,209.86, were sent to the Third Auditor of the Treasury with recommendation that they be disallowed.

The examination of the clothing accounts of officers is being made as fast as they are received. During the fiscal year ending June 30, 1873, 3,647 returns were examined and transmitted to the Treasury Department for settlement, leaving but 376 awaiting examination in this Office.

Twelve clerks, two copyists, and two laborers have been employed, during the fiscal year, in this branch of the Office.

The following described statements accompany this report:

1. Statement showing, as far as can be ascertained from the records of this Office, the quantity of clothing, camp and garrison equipage, and clothing materials in the hands of officers of the Army, June 30, 1872; the quantity of clothing, camp and garrison equipage, purchased, manufactured, sold, lost, and issued to the Army of the United States during the fiscal year ending June 30, 1873, and the quantity remaining on hand for the supply of the Army at that date.

2. Statement of amounts received from the sale of surplus serviceable, unserviceable, damaged, and irregular articles of clothing, &c., sold at the principal clothing depots; also of the amounts derived from sales to officers during the fiscal year ending June 30, 1873.

3. Statement showing expenditures on account of clothing, camp and garrison equipage, during the fiscal year ending June 30, 1873.

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4. Statement of the amounts received and expended by the Quartermaster's Department on account of clothing and equipage during the fiscal year ending June 30, 1873.

5. Statement showing number of claims received and acted upon during the fiscal year ending June 30, 1873, on account of clothing, camp and garrison equipage.

6. Statement of returns of clothing, camp and garrison equipage received, examined, and transmitted to the Treasury Department, and of letters received and written, during the fiscal year ending June 30, 1873.

Very respectfully, your obedient servant,

J. D. BINGHAM,
Quartermaster, U. S. A., Bvt. Brig. Gen.

Brig. Gen. M. C. MEIGS,
Quartermaster-General, U. S. A.

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A.—*Statement showing, as far as can be ascertained from the records of this Office, the quantity of clothing, camp and garrison equipage, and clothing material, in the hands of officers of the Army June 30, 1872, the quantity of clothing and equipage purchased, manufactured, sold, lost, and issued to the Army of the United States during the fiscal year ending June 30, 1873, and the quantity remaining on hand, for the supply of the Army, at that date.*

Articles.	On hand June 30, 1872.	Purchased during fiscal year ending June 30, 1873.	Manufactured during fiscal year ending June 30, 1873.	Taken up during fiscal year ending June 30, 1873.	Total on hand June 30, 1873.	Issued during fiscal year ending June 30, 1873.	Sold during fiscal year ending June 30, 1873.	Lost, destroyed, or worn out during fiscal year ending June 30, 1873.	Total issued, sold, lost, &c., during year.	Total remaining on hand June 30, 1873.
Hats	277,191	13,000	.....	8	290,199	15,704	69,388	3,312	88,404	201,795
Uniform-caps	1,550	4,202	.....	7	5,759	1,456	781	3	2,240	3,519
Forage-caps	318,255	6,702	.....	84	325,041	16,394	63,121	405	79,920	245,121
Cap-covers	61,412	.....	.....	2	61,414	137	9,307	319	9,763	51,651
Cap-bugles	372,013	.....	.....	616	372,629	.....	188,885	6,358	195,243	177,386
Cap-letters	1,061,559	.....	.....	7,057	1,068,616	.....	563,215	12,314	575,529	493,087
Castles	13,168	.....	.....	73	13,241	.....	111	466	577	12,664
Shells and flames	19,691	.....	.....	2	19,693	.....	16,648	83	16,731	2,962
Cords and tassels	563,855	.....	.....	842	564,697	7,024	4,111	928	12,063	552,634
Ostrich-feathers	326,819	.....	.....	606	327,425	5,426	24,565	538	30,529	296,896
Eagles	567,308	.....	.....	5,179	572,487	.....	157,473	5,242	162,715	409,772
Numbers	1,558,234	50,000	.....	18,146	1,626,380	.....	237,313	23,073	260,386	1,365,994
Crossed sabers	191,682	.....	.....	584	192,266	.....	89,081	4,625	93,706	98,560
Crossed cannon	147,225	.....	.....	.....	147,225	.....	106,244	1,478	107,722	39,503
Trumpets	116	.....	.....	34	150	.....	150.	.....	150	.....
Tulips	3,500	.....	.....	67	3,567	.....	910	12	1,922	1,645
Hair plumes	1,888	1	.....	.....	1,889	23	60	4	87	1,802
Cap-rings	4,165	.....	.....	82	4,247	.....	1,186	363	1,549	2,698
Hospital-stewards' hat cords and tassels	2,845	.....	.....	.....	2,845	3	.....	.....	3	2,842
Letters U. S., hospital-stewards'	261	.....	.....	.....	261	.....	100	1	101	160
Wreaths, hospital-stewards'	246	.....	.....	3	249	2	23	.....	25	224
Bands and tassels, red	1,191	.....	.....	.....	1,191	1	537	.....	538	653
Cap-eagles	2,133	.....	.....	.....	2,133	.....	1,950	.....	1,950	183
Hat-sockets	70,846	.....	.....	.....	70,846	.....	20,347	105	20,452	50,394
Cap-plates	327	.....	.....	.....	327	.....	.....	.....	.....	327
Uniform-coats	252,121	.....	15,704	200	268,025	5,933	46,663	4,000	56,596	211,429
Uniform-coats, white	7	.....	.....	.....	7	.....	.....	.....	.....	7
Uniform-jackets	395,608	.....	115	28	395,751	2,325	44,243	409	46,977	348,774
Uniform-jackets, red	5	.....	.....	.....	5	.....	.....	.....	.....	5
Helmets	.....	228	.....	.....	228	194	.....	2	196	32
Metallic scales:										
Non-commissioned staff	5,222	.....	.....	19	5,241	.....	1,620	23	1,643	3,598
Sergeants'	12,670	.....	.....	18	12,688	.....	599	1,044	1,643	11,045
Corporals' and privates'	389,950	.....	.....	915	390,865	.....	23,512	6,573	30,085	360,780
Buttons for scales	9,369	.....	.....	23	9,392	.....	47	249	296	9,096
Sashes	13,537	.....	.....	13	13,550	68	5,166	290	5,524	8,026

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Uniforms										
Linen	1				1					1
White	13				13					13
Cavalry, unmade			1,255		1,255					1,255
Infantry, unmade			4,546		4,546					4,546
Trousers:										
Foot	201,726									
Mounted	87,691		24,600	90	296,416	59,901	9,103	763	69,767	156,649
Overalls	8,433		17,124	89	104,904	35,241	9,026	509	45,376	59,528
Flannel sack-coats:			3,476	58	11,967	2,826	59	2	2,887	9,080
Lined	298,997									
Unlined	344,492		27,046	86	326,129	54,993	10,697	764	66,454	259,675
Shirts, flannel	369,724		40	1,275	345,807	28,725	4,002	564	33,291	312,516
Drawers	731,320			731	370,455	84,111	13,188	870	98,169	272,286
Boots	166,856	32,755		71	731,391	140,437	2,356	1,531	144,324	587,067
Bootees	646,494	24,024		49	199,660	64,885	23,827	365	89,077	110,583
Leggins	5,314			198	670,716	70,577	126,608	545	197,730	472,986
Gaiters	3,821			1	5,315	543	1	90	634	4,681
Stockings	215,809	86,272		7	3,828					3,828
Berlin gloves		29,999		495	302,576	185,722	1,435	1,023	188,180	114,396
Great-coats:					29,999	12,474	67		12,541	17,458
Cavalry	116,217		1,034	18	117,269	20,086	2,220	5,086	27,392	89,877
Infantry	256,726		50	15	256,791	6,369	2,468	1,071	9,908	246,883
Lined	1,012		3,966	1	4,979	500	23	8	531	4,448
Blankets:										
Woolen	115,648	11,289		20	126,957	34,505	11,618	2,766	48,889	78,068
Rubber	406,666			10	406,696	5,014	11,322	989	17,325	389,371
Epaulet	1				1		1		1	
Ponchos:										
Rubber	269,831			324	270,155	3,821	8,156	126	12,103	258,052
Painted	1,970				1,970	142	36		178	1,792
Stable-frocks	39,791		8,740	46	48,577	11,003	269	315	11,587	36,990
Buffalo overshoes	2,029	5,000		106	7,135	3,636	238	159	4,033	3,102
Buffalo overcoats	407				407	12	12		24	383
Mittens, wool	19,080	10,000		2	29,082	10,204	160	31	10,395	18,687
Mittens, buck	683				683	272	47	3	322	361
Chevrons:										
Ordnance sergeant	1,001		136		1,137	24	5	2	31	1,106
Cavalry sergeant-major	1,343		58		1,401	6	63½		69½	1,331½
Cavalry quartermaster-sergeant	1,981		32	21	2,034	6	253		259	1,775
Cavalry commissary-sergeant	28				28		23		23	5
Cavalry first sergeant	4,076		30	18	4,124	18	603	2	623	3,501
Cavalry sergeant	10,912		206	44	11,162	185	1,366	9	1,560	9,602
Cavalry corporal	24,366		319	151	24,836	196	4,265½		4,461½	20,374½
Artillery sergeant-major	1,226		22	2	1,250	1			1	1,249
Artillery quartermaster-sergeant	1,242		18		1,260	3	4		7	1,253
Artillery commissary-sergeant	32				32					32
Artillery first sergeant	3,308		46	2	3,356	11			11	3,345
Artillery sergeant	13,917		92	2	14,011	53	3,023	30	3,106	10,905
Artillery corporal	17,839		150		17,989	71	4,830	20	4,921	13,068
Infantry sergeant-major	1,474		28		1,502	16	39	2	57	1,445
Infantry quartermaster-sergeant	1,451		6		1,457	7	2	3	12	1,445

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A.—*Statement showing, as far as can be ascertained from the records of this Office, the quantity of clothing, &c.*—Continued.

Articles.	On hand June 30, 1872.	Purchased during fiscal year ending June 30, 1873.	Manufactured during fiscal year ending June 30, 1873.	Taken up during fiscal year ending June 30, 1873.	Total on hand June 30, 1873.	Issued during fiscal year ending June 30, 1873.	Sold during fiscal year ending June 30, 1873.	Lost, destroyed, or worn out during fiscal year ending June 30, 1873.	Total issued, sold, lost, &c., during year.	Total remaining on hand June 30, 1873.
Chevrons—Continued.										
Infantry commissary-sergeant	248				248	1			1	247
Infantry first sergeant	10,654		42		10,696	55	31	7	93	10,603
Infantry sergeant	20,064		214	13	20,291	6	105	6	117	20,174
Infantry corporal	35,359		391	97	35,847	550	145½	61	756½	35,090½
Hospital-steward	481		3	2	486	21	24	1	46	440
Caduceus	1,189		12		1,201	14			14	1,187
Service	71,727		40		71,767	120	209	1	330	71,437
Miscellaneous	43,011		93		43,104	5	91½	1	97½	43,006½
Lace, yards:										
1¼-inch, sergeants'	295,556			1,075	296,631	8,199½	894	799½	9,892½	286,738½
¼-inch, corporals'	552,057			604	552,661	6,412½	1,893½	1,151½	9,457½	543,203½
Miscellaneous	1,180,285				1,180,285	287	105,161		105,448	1,074,837
Cord, worsted		84,960			84,960			62,865½	62,865½	22,094½
Gilt aiguillette	1				1					1
Plumes:										
Swan, fountain	1				1					1
Vulture	4				4					4
Tape, bed-sack, pieces	1,000				1,000			416	416	584
Iron bunks	17,448	7,585		163	25,196		867	166	1,033	24,163
Bed-slats:										
Sets			235		235					235
Number	1,745	3,509	6,424	59	11,737			1,589	1,589	10,148
Bed-sacks:										
Single	98,718		3,292	662	102,672	19	4,398	10,581	14,998	87,674
Double	42,585		410	233	43,228	11	1,503	4,787	6,301	36,927
Mosquito-bars:										
Single	58,822			28	58,850	4	916	2,886	3,806	55,044
Double	6,238				6,238	1	163	172	336	5,902
Spades	87,918	1		293	88,212	12	578	1,224	1,814	86,398
Spade-slings	1,500				1,500			1	1	1,499
Shovels	55,791	296		613	56,700		905	1,987	2,892	53,808
Stencil-alphabets, sets		52			52		16		16	36
Stencil-figures, sets		52			52					52
Stencil-letters, 1 inch, sets		100			100					100
Stencil-letters, ½-inch, sets		100			100					100
Stencil-numbers, 1 inch, sets		100			100					100
Stencil-numbers, ½-inch, sets		100			100					100

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Stencil brushes		24			24					24
Stencil tools, sets		1			1					1
Nails, cut, kegs		35			35					
Nails, wrought, kegs		7			7			20	20	6
Carpenters' hatchets		38			38			7	7	
Axes	80,063	4,217		836	85,116	12	2,541	3,647	6,240	38
Ax-helves	63,058	89		1,107	64,914	12	1,238	13,804	15,114	78,876
Ax-slings	30,788			2	30,790		26	20	46	49,800
Camp-kettles	95,057	38		110	95,205	2	655	2,524	3,181	30,744
Mess-pans	408,179			171	408,350	2	275	2,008	2,285	92,024
Hatchets	121,469			217	121,686	3	587	1,296	1,886	406,065
Hatchet-helves	129,498	35		255	129,788	3	313	1,616	1,932	119,800
Hatchet-slings	27,404			4	27,408		43	9	52	127,856
Sand-fly bars	140				140			1	1	27,356
Flags:										139
Garrison	1,130			5	1,135		16	68	84	1,051
Storm	1,421	240		15	1,676		46	200	246	1,430
Garrison and storm halliards	2,066	241		13	2,320		39	130	169	2,151
Recruiting	1,477				1,477		8	102	110	1,367
Recruiting halliards	3,185			3	3,188		4	32	36	3,152
Camp-colors, infantry	5,642				5,642		5	23	28	5,614
Camp-colors, artillery	60				60			5	5	55
Camp-color cases	39				39		3	2	5	34
Guidons	2,181	2			2,183		13	80	93	2,090
Guidon-cases	135			69	204			11	11	193
Standards, cavalry	916				916	17		2	19	897
National colors, artillery	7				7			1	1	6
National colors, infantry	702				702			1	1	701
Regimental colors, artillery	201				201			1	1	200
Regimental colors, infantry	734				734			2	2	732
General hospital	417				417					417
Ambulance, or red	2,201				2,201					2,201
Post and field hospital	777				777			2	2	775
Ambulance and guidon	2,639				2,639		74		74	2,565
Hospital guidon	31				31					31
Designating, corps, &c	48				48					48
Signal	7				7		3		3	4
Post and field	212				212					212
Miscellaneous	1	2			3			1	1	2
Color-cases	12				12			4	4	8
Color cords and tassels	132				132					132
Color belts and slings	966				966			2	2	964
Color-belt slings	1,174				1,174					1,174
Staffs, assorted	553				553					553
Flag-poles	3				3		1		1	2
Trumpets	3,393	50		61	3,504		30	189	219	3,285
Bugles with extra mouth-pieces	3,447			15	3,462		44	186	230	3,232
Bugle and trumpet extra mouth-pieces and crooks	1,512	50		10	1,572		22	55	77	1,495
Cords and tassels	17,777			55	17,832		92	262	354	17,478
Fifes	13,420			5	13,425		66	154	220	13,205
Drums:										
Complete	4,661			7	4,668		36	146	182	4,486

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A.—*Statement showing, as far as can be ascertained from the records of this Office, the quantity of clothing, &c.*—Continued.

Articles.	On hand June 30, 1872.	Purchased during fiscal year ending June 30, 1873.	Manufactured during fiscal year ending June 30, 1873.	Taken up during fiscal year ending June 30, 1873.	Total on hand June 30, 1873.	Issued during fiscal year ending June 30, 1873.	Sold during fiscal year ending June 30, 1873.	Lost, destroyed, or worn out during fiscal year ending June 30, 1873.	Total issued, sold, lost, &c., during year.	Total remaining on hand June 30, 1873.
Drums—Continued.										
Heads, batter	9,319	2,600	.....	39	11,958	.....	75	1,278	1,353	10,605
Heads, snare	13,889	.....	.....	38	13,927	.....	191	1,219	1,410	12,517
Slings	10,889	.....	.....	17	10,906	.....	46	177	223	10,683
Sticks, pairs	17,249	.....	.....	11	17,260	.....	37	178	215	17,045
Stick-carriages	13,545	.....	.....	.....	13,545	.....	5	102	107	13,438
Cords	4,865	.....	.....	25	4,890	.....	99	538	637	4,253
Snares, sets	10,282	.....	.....	24	10,306	.....	65	296	361	9,945
Cases	6,061	.....	.....	15	6,076	.....	63	48	111	5,965
Tents:										
Hospital	5,329	.....	.....	4	5,333	.....	65	499	564	4,769
Hospital flies	4,815	.....	.....	3	4,818	.....	47	369	416	4,402
Hospital poles, sets	6,620	.....	31	17	6,658	.....	496	169	665	6,003
Wall	7,505	.....	41	29	7,575	.....	286	674	960	6,615
Wall flies	6,168	.....	168	7	6,343	.....	225	602	827	5,516
Wall poles, sets	12,185	.....	.....	8	12,193	.....	696	867	1,563	10,630
Common	26,219	.....	262	43	26,524	.....	954	3,184	4,138	22,386
Common poles, sets	27,407	3,368	.....	35	30,810	.....	408	2,579	2,987	27,823
Shelter	703,594	.....	.....	205½	703,899½	.....	1,886	12,571	14,457	689,442½
Shelter poles, sets	77,012	.....	.....	20	77,032	.....	25	1,350	1,375	75,657
Sibley	37	.....	1	3	41	.....	37	4	41	.....
Sibley poles	448	.....	1	.....	449	.....	26	16	42	407
Sibley tripods	278	.....	.....	.....	278	.....	4	2	6	272
Miscellaneous	868	.....	.....	1	869	.....	.....	.....	.....	869
Extra wall ridge-poles	14	.....	.....	715	729	.....	724	5	729	.....
Extra wall upright poles	.....	.....	.....	17	17	.....	.....	17	17	.....
Shelter-tent guys	1,170	.....	.....	.....	1,170	.....	.....	.....	.....	1,170
Shelter-tent rings and cords	260	.....	.....	.....	260	.....	.....	.....	.....	260
Rope, feet	18,544	.....	.....	.....	18,544	.....	.....	6,025	6,025	12,519
Tent-pins, assorted	1,610,634	.....	17	5,068	1,615,719	.....	51,917	102,061	153,978	1,461,741
Sibley-tent stoves	2,099	.....	.....	3	2,102	.....	30	56	86	2,016
Sibley-tent pipe, joints	112	.....	.....	272	384	.....	33	351	384	.....
Sibley-tent pipe, sets	535	.....	.....	.....	535	.....	3	2	5	530
Tent-buttons	20,000	.....	.....	.....	20,000	.....	.....	5,000	5,000	15,000
Iron pots	2,850	.....	.....	55	2,905	.....	6	178	184	2,721
Pickaxes	60,303	100	.....	595	60,998	.....	222	793	1,015	59,983
Pickax-helves	87,406	.....	.....	85	87,491	.....	368	1,765	2,133	85,358
Pickax-slings	.....	.....	.....	218	218	.....	179	39	218	.....

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Books—										
Clothing account, company	12,316			14	12,330		12	152	164	12,168
Descriptive, company	12,755			2	12,757		13	116	129	12,628
Order, company	12,647			5	12,652		11	233	244	12,408
Morning report, company	13,526			18	13,544		11	178	189	13,355
Post order	5,870				5,870		11	45	75	5,795
Post morning report	6,428			12	6,440		30	23	36	6,381
Post letter	6,132			2	6,134		23	36	59	6,060
Post guard report	3,562			4	3,566		26	48	74	3,407
Regimental general order	2,175				2,175		11	148	159	2,145
Regimental letter	1,996			3	1,999		20	10	30	1,980
Regimental descriptive	2,636			5	2,641		5	14	19	2,631
Regimental index	2,520				2,520		5	5	10	2,503
Regimental order	2,183				2,183		10	7	17	2,164
Target practice	2,484			2	2,486		3	16	19	2,467
Miscellaneous								8	8	2,476
Books—paper covers:	947			3	950		1	172	173	777
Morning report, company	57				57			12	12	45
Clothing account, company	9				9			7	7	2
Order, company	14				14			7	7	7
Descriptive, company	10				10			10	10	
Miscellaneous:										
Hats, light colored	219	1,428			1,647		812	55	867	780
Hats, straw				1	1		1		1	
Fatigue-frocks, cotton			110		110					110
Seal-skins	1,856				1,856					1,856
Fur caps	304				304					304
Snow-packs	24				24					24
Beeswax		400			400			200	200	200
Burlaps	13,979			6,502	20,481		6	6,358	6,364	14,117
Diagrams of clothing	3,990				3,990		3,990		3,990	
Nails, papers	10,000				10,000					10,000
Needles, papers		1,500			1,500			225	225	1,275
Palms		14			14					14
Paper, petroleum	38,437	43,737		600	82,774			39,865	39,865	42,909
Paper, wrapping	7,895	217		9,000	17,112			476	476	16,636
Sealing-wax		370			370			280	280	90
Sewing-machines	6				6		6		6	
Screws, gross		245			245			90	90	155
Silk tassel	1				1					1
Silk markers		4			4					4
Tailors' crayons	693	30			723			58	58	665
Materials:										
Dark-blue uniform cloth, 6-4	172,805				172,805	1,146	1,746.9	52,342¼	55,235¾	117,569¼
Dark-blue uniform cloth, 3-4	1,242½			2½	1,255½	88	432½		520½	734½
Dark-blue flannel, 6-4	79,312½			½	79,313	89	620¾	22,275¾	22,985½	56,327½
Dark-blue flannel, 3-4	1,107,521				1,107,521	243¼	321¼	55,747⅜	56,312⅜	1,051,208⅛
Light-blue flannel	50				50					50
Sky-blue kersey, 6-4	32,691			36¼	32,727½	165½	647⅜	20,641¼	21,454	11,273½
Sky-blue kersey, 3-4	666,016½			62	666,078½	228⅜	892⅜	136,694½	137,815½	528,263
Facing cloth, assorted	1,339	83,239			84,578		67⅜	83,692⅜	83,760¼	817⅞
White wool flannel	4,429				4,429			10	10	4,419

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A.—*Statement showing, as far as can be ascertained from the records of this Office, the quantity of clothing, &c.*—Continued.

Articles.	On hand June 30, 1872.	Purchased during fiscal year ending June 30, 1873.	Manufactured during fiscal year ending June 30, 1873.	Taken up during fiscal year ending June 30, 1873.	Total on hand June 30, 1873.	Issued during fiscal year ending June 30, 1873.	Sold during fiscal year ending June 30, 1873.	Lost, destroyed, or worn out during fiscal year ending June 30, 1873.	Total issued, sold, lost, &c., during year.	Total remaining on hand June 30, 1873.
Materials—Continued.										
Gray shirting	680, 685			37½	680, 722½		172⅜	28, 618½	28, 790⅞	651, 931⅝
Scarlet flannel	3, 400			26⅛	3, 426⅛	35⅛	70	3, 320⅝	3, 426⅛	
Brown drilling	880, 713				880, 713		24½	31, 178	31, 202½	849, 510½
Brown muslin	442, 065½				442, 065½		123	83	206	441, 859½
Bleached muslin				155	155		129	26	155	
Canton flannel	368, 322½				368, 322½	80	362	38, 506	38, 948	329, 374½
Scarlet cloth	10				10	1		3	4	6
Black silesia	36, 944	36, 435⅛			73, 379⅛		64½	39, 724	39, 788½	33, 591
Canvas padding	2, 230				2, 230			2, 230	2, 230	
Silk lace, assorted				18	18		11	7	18	
Worsted braid, assorted	89, 336	3, 024			92, 360		20, 000	4, 212	24, 212	68, 148
Buttons, assorted	786, 305				786, 305		17, 372	9, 217½	26, 589½	759, 715½
Thread, spools		29, 296			29, 296		2, 310	1, 760	4, 070	25, 226
Thread, pounds	12, 477	3, 855			16, 332			2, 274⅝	2, 274⅝	14, 057⅜
Thread, skeins	1, 345				1, 345			490¾	490¾	854¼
Lacing-cord, pounds	7, 379				7, 379		44		44	7, 335
Lacing-cord, feet	1, 086, 157	50			1, 086, 207					1, 086, 207
Bunting	119	1			120			85⅝	85⅝	34⅜
Rope, baling, pounds	2, 039	2, 013			4, 052			4, 052	4, 052	
Rope, Manila, pounds	71, 902½				71, 902½			4, 649	4, 649	67, 253½
Duck, cotton, 8-oz	400, 820			6, 667½	407, 487½			12, 665½	17, 665½	389, 821½
Duck, canvas	2½			10, 900	10, 902½		1½	5, 517½	5, 518½	5, 383½
Duck, white	195				195	1			1	194
Webbing-cotton	1, 008				1, 008			752	752	256
Silk, sewing, pounds	116	328			444		222½		222½	221½
Silk, sewing, spools	246	1, 998			2, 244		2, 244		2, 244	
Silk twist, oz		960			960			223	223	737
White Holland	26				26					26
Baskets		2			2					2
Boxes, packing	9, 443	3, 050			12, 493	430	351	3, 052	3, 833	8, 660
Boot-trees	194				194		194		194	
Brass scraps, pounds				20	20		20		20	
Brass sheets		50			50			25	25	25
Brushes, cloth		36			36					36
Brushes, dusting		6			6					6
Brushes, marking		24			24					
		1			1					

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Cuttings, cotton, pounds				4, 160	4, 160		4, 000		4, 000	160
Cuttings, wool, pounds				11, 600	11, 600		6, 000		6, 000	5, 600
French chalk, boxes		1			1			1	1	
French lead, boxes					2			2	2	
Fullers' boards		2			240			240	240	
Gas-burners		240			50			50	50	
Hickory straps	960	50			2, 660	300		1, 990	2, 290	370
Iron straps		1, 700			3, 900		1, 500		1, 500	2, 400
Iron scraps, pounds				3, 900	65		65		65	
Lasts	348			65	348		348		348	
Lumber, lots					1		1		1	
Lumber, pine, feet	17, 000	20, 100		1	37, 100			24, 100	24, 100	13, 000
Matches, boxes		430			430			200	200	230
Powder, Persian insect		2			2			2	2	
Rags				3, 574	3, 574		3. 574		3, 574	
Resin		460			460			100	100	360
Rubber sandstones		12			12					12
Shoe-knives		5			5					5
Sod-cloths				2, 800	2, 800					2, 800
Table-cloths		28			28					28
Tags		50, 000			50, 000	2, 160		2, 660	4, 820	45, 180
Tarred marlin				35	35			35	35	
Tent cuttings, pounds	628				628					628
Trucks		12			12					12
Turpentine, gallons		25			25			10	10	15
Twine, blocking, pounds	502	2, 019			2, 521			1, 660	1, 660	861
Twine, cotton, pounds	7, 904				7, 904			15	15	7, 889
Twine, flax, pounds	99	332			431			344	344	87
Twine, hemp, pounds	257				257					257
Wagon-covers				228	228			228	228	
Tickets, clothing	39, 755			45	39, 800			39, 800	39, 800	

Respectfully submitted.

J. D. BINGHAM,
Quartermaster U. S. A., Bvt. Brig. Gen.

QUARTERMASTER-GENERAL'S OFFICE, *Washington, D. C., October* 2, 1873.

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B.—*Statement showing expenditures on account of clothing and camp and garrison equipage, during the fiscal year ending June 30, 1873.*

Military Division of the Pacific	$65,849 35
Department of the East	629 71
Department of the Lakes	1,411 18
Department of the South	258 52
Department of the Gulf	520 8[illegible]
Department of the Missouri	3,065 9[illegible]
Department of the Platte	6,989 27
Department of Dakota	2,218 51
Depot at New York	19,502 10
Depot at Philadelphia, Pa	683,732 5[illegible]
Depot at Washington, D. C	1,922 07
Depot at Jeffersonville, Ind	68,911 44
Depot at Chicago, Ill	600 00
Depot at Saint Louis, Mo	2,770 00
Military Academy at West Point, N. Y	23 25
Various arsenals of Ordnance Department	7 25
Transfer to Ordnance Department, for the manufacture of knapsacks, &c	41,953 33
Total	900,365 40

Respectfully submitted.

J. D. BINGHAM,
Quartermaster, U. S. A., Bvt. Brig. Gen.

QUARTERMASTER-GENERAL'S OFFICE, *October* 2, 1873.

C.—*Statement of amounts received from the sale of surplus serviceable, unserviceable, damaged, and irregular articles of clothing &c., sold at the principal clothing depots, &c.; also, of the amounts derived from sales to officers during the fiscal year ending June* 30, 1873.

From sales at Jeffersonville, Ind	$143,513 2[illegible]
From sales at Philadelphia, Pa	247,007 2[illegible]
From sales at the other depots of the Quartermaster's Department	47,633 7[illegible]
From sales to officers	18,832 5[illegible]
Total	456,986 8[illegible]

Respectfully submitted.

J. D. BINGHAM,
Quartermaster, U. S. A., Bvt. Brig. Gen.

QUARTERMASTER-GENERAL'S OFFICE, *October* 2, 1873.

D.—*Statement of the amounts received and expended by the Quartermaster's Department on account of clothing, and camp and garrison equipage during the fiscal year ending June* 30, 1873.

Receipts:	
Appropriations by Congress	$900,000 00
Deposited in Treasury by officers to credit of appropriation	369 93
Received from sales	456,986 82
Total receipts during fiscal year	1,357,356 75
Total expenditures during fiscal year	1,357,352 2[illegible]
Balance in Treasury June 30, 1873	4 5[illegible]
Expenditures:	
Expenditures for clothing and equipping the Army	$858,412 0[illegible]
Transfer to Ordnance Department, on account of knapsacks	41,953 3[illegible]
Covered into the Treasury, from sales, &c	456,986 8[illegible]
Total expenditures	1,357,352 2[illegible]

Respectfully submitted.

J. D. BINGHAM,
Quartermaster, U. S. A., Bvt. Brig. Gen.

QUARTERMASTER-GENERAL'S OFFICE, *October* 2, 1873.

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E.—*Statement of returns of clothing and camp and garrison equipage received, examined, and transmitted to the Treasury Department, and of letters received and written during the fiscal year ending June* 30, 1873.

Number of returns of clothing and equipage on hand June 30, 1872	80
Number of returns of clothing and equipage received during fiscal year	3,943
Total	4,023
Number of returns of clothing and equipage examined and transmitted to Treasury Department	3,647
Remaining on hand June 30, 1873	376
Number of letters received pertaining to settlement of officers' accounts	2,456
Number of letters received pertaining to the purchase, manufacture, and issue of clothing and equipage	1,909
Total	4,365
Number of letters written pertaining to settlement of officer's accounts	6,396
Number of letters written pertaining to the purchase, manufacture, and issue of clothing and equipage	3,265
Total	9,661

Respectfully submitted.

J. D. BINGHAM,
Quartermaster, U. S. A., Bvt. Brig. Gen.

QUARTERMASTER-GENERAL'S OFFICE, *October* 2, 1873.

F.—*Statement showing number of claims received and acted upon during the fiscal year ending June* 30, 1873, *on account of clothing and equipage.*

Twelve claims received, amounting to	$19,678 42
Six claims referred to Third Auditor of the Treasury, with recommendation for settlement, amounting to	5,792 10
Three claims referred to Third Auditor of the Treasury, with recommendation that they be disallowed, amounting to	8,209 86

Respectfully submitted.

J. D. BINGHAM,
Quartermaster, U. S. A., Bvt. Brig. Gen.

QUARTERMASTER-GENERAL'S OFFICE, *October* 2, 1873.

V.—*Report of Maj. M. I. Ludington, quartermaster, U. S. A.*

QUARTERMASTER-GENERAL'S OFFICE,
September 25, 1873.

GENERAL: I have the honor to submit the following report of the operations of the several branches of your Office under my charge during the fiscal year ending June 30, 1873:

INDEBTED RAILROAD COMPANIES.

At the close of the fiscal year ending June 30, 1872, there were due the United States from railroad companies which purchased railway material and rolling-stock under the provisions of Executive orders of August 8 and October 14, 1865, and for repairs to railroads, $4,734,442.43. During the fiscal year ending June 30, 1873, interest has accrued upon this indebtedness and expenses have been incurred to the amount of $101,573.95. Payments have been made and credited to the companies to the amount of $151,303.44.

On July 1, 1873, there remained an indebtedness of $4,658,924.07 to be collected, not including the sum of $25,788.87 due from the New Or-

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leans and Ohio Railroad Company, which cannot be collected by reason of the company being bankrupt.

By referring to the report for the fiscal year ending June 30, 1872, it will be seen that during that fiscal year the debt increased $10,091.90. During the last fiscal year it has decreased in the manner indicated $75,518.36.

Accompanying this report there is a statement marked A, showing the original indebtedness of each company; the total increase on account of interest and expenses; the increase or decrease of the debt during the year; the payments made during the year; the total payments, and the balance unpaid July 1, 1873.

Four companies, the Alabama and Florida, the Indianola, now the Gulf, Western Texas and Pacific, the Mississippi and Tennessee, and the Pacific Railroad of Missouri—main stem—have discharged their indebtedness during the year.

Seven companies, the Alexandria, Loudon and Hampshire, the Alabama and Chattanooga, the East Tennessee and Georgia, the East Tennessee and Virginia, the Nashville and Chattanooga, the Nashville and Decatur, and the Southwest Branch Pacific Railroad of Missouri, reduced their indebtedness $94,339.02. These companies also paid on account of interest $1,756.62, making their total payments during the year $96,095.64.

The indebtedness of nine companies, the Edgefield and Kentucky, the Knoxville and Kentucky, the McMinnville and Manchester, the Mississippi, Gainesville and Tuscaloosa, the Mobile and Ohio, the Memphis, Clarksville and Louisville, the Memphis and Little Rock, the Nashville and Northwestern, and the Selma, Rome and Dalton, has increased $83,528.29. The companies have, however, paid to the United States during the year $15,976.40.

In addition to the amount stated to have been received and applied to the liquidation of this indebtedness, accounts for the transportation of the troops and property of the United States remain unadjusted, as follows, to wit:

Alabama and Chattanooga Railroad Company, in Treasury Department..	$149 42
East Tennessee and Virginia Railroad Company, in Treasury Department	19,529 90
East Tennessee and Georgia Railroad Company, in Treasury Department	8,084 74
Edgefield and Kentucky Railroad Company, in Treasury Department....	4 80
Mobile and Ohio Railroad Company, in Treasury Department.....	75,775 03
Mobile and Ohio Railroad Company, in Quartermaster-General's office—suspended	414 62
Memphis, Clarksville and Louisville Railroad Company, in Treasury Department.....	3,593 60
Memphis, Clarksville and Louisville Railroad Company, in Quartermaster-General's office.....	5,699 21
Nashville and Northwestern Railroad Company, in Treasury Department	1,474 70
Nashville and Chattanooga Railroad Company, in Treasury Department..	20,812 28
Southwest Branch Pacific Railroad of Missouri, in Treasury Department	841 00
Selma, Rome and Dalton Railroad Company, in Treasury Department....	5,874 49
Total	142.253 79

When these accounts shall have been finally examined and adjusted, they will be placed to the credit of the respective railroad companies, thereby reducing the total indebtedness, as shown above, to $4,516,670.28.

There is also due for postal service rendered by these companies about $101,000, which, when paid over by the Post-Office Department, as contemplated by the seller and purchaser of the property, will still further reduce the debt.

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In this connection your attention is invited to the necessity for Congressional legislation, or other authoritative action, to provide for the payment to this Department, at the end of each and every quarter, of all money due any indebted railroad company for postal service, until its indebtedness has been discharged, and notice to that effect given by the Quartermaster-General.

The necessity for such action is found in the following: Under the provisions of Executive Orders of August 8 and October 14, 1865, large quantities of railway material and rolling-stock, amounting in value to $4,665,061.16, were sold on credit to the railroad companies now indebted, on the express condition, among others, that all postal earnings of the several companies should be applied to the liquidation of the debts. Subsequent negotiations and agreements have recognized and affirmed this condition. The companies carry the mails, and the Postmaster-General, in settlement for the service, directs that the amount found due for it be placed to the credit of the Quartermaster's Department.

Before the Auditor of the Treasury for the Post-Office Department, whose duty it is to make payment for postal service, will place the money to the credit of the Quartermaster's Department, or, in other words, pay it over to this Department, he requires each railroad company, by an agent appointed by its board of directors, to give an order in favor of this Department for the amount due. Until such an order has been given the money remains as a part of the appropriations for the Post-Office Department, and is not transferred to the appropriations for the Quartermaster's Department; neither can it be placed to the credit of the railroad companies on the books of this office.

The Auditor holds that he has no authority to pay to the Quartermaster's Department money due for service rendered by these railroad companies without an order from them requesting that it be done, notwithstanding the fact that it was one of the conditions on which the property was sold that the money, when earned, should be placed to their credit, and notwithstanding the further fact that this office has urged that a contract, executed by this Department by order of the President of the United States, should be respected by the other Departments of the Government. In order, therefore, that the Auditor may pay the money to this Department, or rather more properly, issue his warrant therefor, so that a transfer of the money to the appropriations for this Department can be made, and the proper credit be given, some action by Congress, or other competent authority, seems to be absolutely necessary.

I have further to report that I am informed that under the act of July 12, 1870, sections 5 and 6, the money due for a portion of this service has been turned into the Treasury, so that, without a specific appropriation, the amount due for services prior to the time the moneys were so turned into the Treasury cannot be transferred to this Department and applied to the liquidation of the debt. There is, in fact, no money to be so applied.

Since the date of my last annual report, the suit against the Nashville and Decatur Railroad Company has been compromised and settled, under the act of March 3, 1871, (16 Stat., chap. 109,) for the sum of $70,000—$6,000 cash, balance payable in ten years from July 1, 1872, with interest at the rate of 5 per cent. per annum, payable semi-annually, on the first days of January and July of each year.

The indebtedness of the company to this amount is evidenced by its bond with interest coupons attached, and payment secured by a lien

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upon all the property and franchises of the company, by guarantee of the Louisville and Nashville Railroad Company, and by decree of the United States circuit court, affirming the liability of the company, to be enforced by execution in case of default in making payment according to the terms agreed upon.

I cannot report any progress in the suits against the Nashville and Northwestern, the McMinnville and Manchester, and the Knoxville and Kentucky railroad companies during the year, though I have urged that they be brought to a hearing as soon as possible.

The suit against the McMinnville and Manchester Railroad Company has been postponed, at the request of counsel for the company, pending decision of the suit of that company against the Nashville and Chattanooga Railroad Company. The question of a longer postponement is now under consideration.

By reference to the table herewith it will be seen that the indebtedness of the Alabama and Chattanooga Railroad Company has been reduced to $3,980.02. Since the first of July I have received $2,775.55 on account of postal services rendered by the company, and the amount that will be due for services rendered during the third quarter of 1873 will more than liquidate its debt.

The Memphis and Little Rock Railroad Company has made no payments on its indebtedness during the year. It has carried the mails, but the amount due for that service is retained by the Auditor of the Treasury for the Post-Office Department, that officer declining to pay the money over to this Department, as required by the contract between the company and this Department, without an order from the company requiring it to be done, and the company refuses to give the order.

Learning some few months since that the road had been sold by decree of court under its second mortgage, I made inquiry of the United States district attorney for information upon that point and the advisability of bringing suit against the company to recover the amount due the United States. The district attorney in reply stated that the road was sold to Mr. Witt on the 17th day of March last; that he had been informed that measures were being taken to have the road sold under the first mortgage; that such a sale might embarrass the Government in making a collection, should it be compelled to collect it by distraint or suit; and that further delay of the payment of this debt is hazardous to the Government.

With these facts before the office, and the knowledge that the railroad company not only was not making any payments, but would not pay when it could, a statement of the case was submitted to the Secretary of War, with the recommendation that suit be instituted to recover the amount due. The recommendation was approved, and the papers have been sent to Messrs. Perry and Mathews, with instructions to bring suit at once.

In my annual report for the fiscal year ending June 30, 1871, I stated that "Arrangements had been made with the Selma, Rome and Dalton Railroad Company, under which payment of its debt is to be made in monthly installments of $1,000 each, in money, commencing on the 1st of October, 1871, and continuing for one year; thence for one year $2,000 per month, and thereafter $3,000 per month until the debt is discharged. In addition to the foregoing payments, all postal earnings and earnings from military transportation are to be applied to the payment of the debt."

It is now my duty to report that the company has failed to keep its written promise and agreement so far as the payment of the monthly

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installments is concerned, or to show any intention to comply therewith. This is the more remarkable because the president of the company, in his letter asking that the company be permitted to pay its debt upon these terms, said he did it with the approval of the directors of the road, and that it was not his intention to submit a proposition which he could not fulfill—"knowing the honesty of my purpose, I trust the foregoing proposition will be accepted."

The company has carried the mails and furnished whatever transportation has been required. The amounts due for the transportation service have been, or will be so soon as the accounts can be settled, placed to the credit of the company; but the amount due for carrying the mails the past year has not been paid, because the Auditor refuses to pay without an order from the company, and the company refuses to give the order.

Further action, either by legislation or suit, is necessary to compel payment of this debt.

During the fiscal year I received from indebted railroad companies in money and postal dues $75,972.90, all of which has been deposited in the Treasury of the United States, and also credited upon their indebtedness.

TRANSPORTATION.

It is shown by reports of officers, so far as received, that the Quartermaster's Department transported by rail, water, wagon, and stage during the fiscal year 72,860 persons, 8,148 animals, and 164,125,223 pounds of material.

The remodeled system of transportation referred to in my last annual report, having been approved by the Hon. Second Comptroller, has been adopted and is believed to work satisfactorily and advantageously. It was published in General Orders No. 98, Adjutant-General's Office, series 1872. A copy of this order was transmitted to each railroad and other transportation company in the United States known to this office.

RAILROAD TRANSPORTATION.

The reports of officers show that 32,935 persons, 6,122 animals, and 76,649,739 pounds of material were carried by railroad.

Amount paid for railroad transportation as reported by disbursing officers of this Department	$555,198 28
Amount of accounts for similar service rendered during the fiscal year referred by this office to the Treasury Department for settlement	366,316 59
Total settlements for railroad-transportation service during the year	921,514 87

The records of this office show the transportation service performed by the Pacific Railroads for this Department during the fiscal year to have been as follows, viz:

Name of company.	Number of persons transported.	Number of animals transported.	Pounds of freight transported.
Union Pacific Railroad	6,166	1,763	21,697,106
Central Pacific of California	3,034	63	2,444,211
Kansas Pacific Railroad	1,951	390	5,711,947
Sioux City and Pacific Railroad	223	36	3,544,054
Total	11,374	2,252	33,397,318

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The cost of service performed by the Pacific railroads during the fiscal year, so far as accounts have been received at this office, may be stated as follows:

Name of company.	Amount of accounts referred to the Treasury for settlement.	Amount of accounts rendered and under examination July 1, 1873.	Totals.
Union Pacific Railroad	$211,339 87	$48,536 48	$259,876 35
Central Pacific of California	70,186 23	32,262 84	102,449 07
Kansas Pacific Railroad	56,173 61	.....	56,173 61
Sioux City and Pacific Railroad	1,383 26	351 66	1,734 92
Total	339,082 97	81,150 98	420,233 95

At the date of this report all of the accounts for each month's service performed by these railroads, during the fiscal year, have not been received at this office, but taking the monthly average value of the accounts, already presented for settlement, as a basis, their total earnings during the year would be as follows:

Union Pacific Railroad Company	$445,501 00
Central Pacific Railroad Company	136,598 07
Kansas Pacific Railroad Company	149,797 00
Sioux City and Pacific Railroad Company	2,402 44
	734,298 51

By act of Congress approved July 2, 1864, (section 5,) one-half of the compensation for services rendered for the Government by those Pacific railroads that had received Government bonds in aid of their construction was required to be applied to the payment of the bonds so issued by the Government. The other half of their earnings was paid to the companies in cash, until the passage of the act of Congress of March 3, 1873, (section 2,) which directs the Secretary of the Treasury to withhold all payments to said railroad companies to the amount of payments made by the United States for interest upon bonds of the United States issued to said companies.

In view of the provisions of this law of March 3, 1873, the Quartermaster-General requested information from the Second Comptroller as to whether the earnings of these roads were still to be made a charge against the appropriation for the Quartermaster's Department, "appropriation for transportation of the Army."

The Acting Second Comptroller decided August 4, 1873, "That the moiety withheld from Pacific Railroads, under section 2 of act of March 3, 1873, although it be not paid to the railroads except in the event of a favorable judgment of the court, must be charged against appropriation of the Quartermaster's Department for transportation of the Army."

Therefore, although payment is withheld from the companies, the full amount earned by these roads is now, as before passage of act of March 3, 1873, to be taken from appropriation of the Quartermaster's Department for Army transportation.

WAGON AND STAGE TRANSPORTATION.

The transportation by wagon was as follows: 756 passengers, 32,004,635 pounds of freight.

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The reports show the transportation by stage to have been 1,380 passengers and 3,648 pounds of freight.

Amount paid for wagon transportation as reported by disbursing officers of this Department	$977,753 94
Amount of accounts for service rendered during the fiscal year, referred by this office to the Treasury Department for settlement	189 50
Total for wagon-transportation service rendered during the year	977,943 44
Amount paid during the year for stage transportation as reported by disbursing officers of this Department	59,262 29
Amount of accounts for services rendered during the fiscal year, referred by this office to the Treasury Department for settlement	57 00
Total for stage-transportation service rendered during the year	59 319 29

Thirty-two contracts for wagon transportation were made during the year. The contract for wagon transportation from most convenient points on the Atchison, Topeka and Santa Fé, Kansas Pacific and Denver and Rio Grande railroads, to posts in the Department of Missouri, as also in the State of Texas, north of Red River and west of the 97th meridian, and Camp Apache, Ariz., from May 10, 1873, to March 31, 1874, was made at the rate of 90¾ cents per 100 pounds per one hundred miles. The average of the rate for this service during the previous contract year from points on the same roads was $1.17½ per 100 pounds per one hundred miles.

The existing contract rates for wagon-service in Texas show also a material reduction in the price per 100 pounds per one hundred miles, as compared with the contract rates for previous years.

The decrease of rates in the Department of Texas, as also in the Department of Missouri, is doubtless due in a great measure to the shortening of the distance of wagon travel consequent upon the rapid completion of the lines of railroad west and southwest toward the posts to be supplied, wherefore freighters, no longer subject to the delays and dangers of travel over the previous longer routes, can afford to transport stores at more reasonable rates per 100 pounds per one hundred miles.

A slight increase of rates generally over those of the previous year was paid under the contracts for hauling on the Pacific coast made during the year ending June 30, 1873.

WATER TRANSPORTATION.

There were carried by water for the Department during the fiscal year 37,789 persons, 2,026 animals, and 55,467,201 pounds of material.

The amount paid on account of this service by disbursing officers during the year, so far as was reported, was	$751,018 22
Accounts and claims for similar service rendered during the fiscal year, audited in this office and referred to the Treasury for settlement, amounted to	9,955 36
Total	760,973 58

The following vessels owned by the Government have been in service during the entire fiscal year, viz:

Steam-tug General A. A. Humphreys, employed at Boston.
Propeller General McPherson, employed at San Francisco.
Schooner Margaret, employed at Portland, Oreg.
Steam-launch Pulaski, employed at Fort Pulaski, Ga.

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Schooner Matchless, employed at Fort Jefferson, Fla.

The cost during the year of running and maintaining these vessels owned by the Government was $37,413.19.

Twelve vessels of different kinds have, at various times as the necessities of the service required, been employed by charter or otherwise during the year at an expense of $43,056.76, which, together with cost of running and maintaining vessels owned by the United States, is included in the amount hereinbefore reported as having been paid on account of water transportation by disbursing officers of this Department.

Transportation appropriation and its disbursement.

Original amount appropriated for fiscal year 1872–'73	$4,000,000 00
Deficiency appropriation	500,000 00
Total	4,500,000 00

Recapitulation of expenditures made from appropriation for Army transportation up to July 1, 1873, for transportation service rendered during the fiscal year 1872–'73.

Kind of transportation.	Passengers	Freight.	Expenditures.	Total.
For railroad transportation	$595,344 33	$324,972 92	$1,197 62	$921,514 87
For water transportation, including expenses of running and maintaining Government vessels	192,193 64	515,305 35	53,474 59	760,973 58
For wagon transportation	577 46	924,732 50	52,633 48	977,943 44
For stage transportation	54,206 47	1,526 47	3,586 35	59,319 29
Total	842,321 90	1,766,537 24	110,892 04	2,719,751,18
For purchase of transportation animals; for purchase and repairing of Army and spring wagons, carts, harness, &c.; for hire of teamsters; for pumps and other apparatus to supply posts with water, estimated				1,350,000 00
Amount paid for building and repairing wharves, for digging wells, and for tolls				18,139 07
Grand total				4,087,890 25

Since the close of the fiscal year officers have made payments, and report an outstanding indebtedness to be met, the totals of which will absorb about all the balance of the appropriation, and to settle under the decision of the Second Comptroller of August 4, 1873, before referred to, the accounts of the Pacific Railroad for service during the year, now under examination at this office and to come in, a deficiency appropriation will probably be necessary.

Transportation accounts of previous fiscal years.

During the fiscal year accounts and claims for transportation service performed during the previous fiscal years were referred by this office to the Treasury Department for settlement as follows:

For railroad transportation	$450,799 80
For water transportation	130,108 20
For wagon transportation	62,781 77
For stage transportation	1,122 00
For miscellaneous transportation-claims, telegrams, &c	7,597 40
Total	652,409 17

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REGULAR AND MISCELLANEOUS SUPPLIES.

CONTRACTS.

There were filed and examined in this office during the fiscal year 614 contracts, as follows: 230 for forage, embracing 5,664,734 pounds of oats or barley, 457,940 bushels of oats, 345,937 bushels of corn, 30,744 tons of hay, 439,000 pounds of bran; 6 for forage as required, 23 for both forage and fuel; 11 for straw, 2,508 tons; 30 for coal, 22,011 tons; 144 for wood, 84,022 cords; 2 for wood as required; 37 for charcoal, 49,075 bushels; 4 for the construction of quarters, 47 for transportation, 5 for miscellaneous services; 7 for horses and mules, 701 cavalry horses, 35 artillery horses, and 100 mules; 12 for clothing, camp and garrison equipage; 16 for national cemeteries, 3 for stationery, 36 leases, 1 charter party.

FORAGE, STRAW, AND FUEL.

The issues of forage and straw during the fiscal year were as follows: corn, 588,488 bushels; oats, 939,690 bushels; barley, 172,870 bushels; hay, 48,558 tons; fodder, 116 tons; straw, 3,292 tons; bran, 55,084 bushels.

The issues of fuel during the same period were: wood, 130,786 cords; anthracite coal, 16,937 tons; bituminous coal, 15,300 tons.

ANIMALS.

The following statements show the number of horses and mules purchased in the several military departments during the fiscal year ending June 30, 1873, with their total and average cost:

Cavalry and artillery horses.

Where purchased.	Number.	Total cost.	Average.
Department of the East	43	$10,777 50	$250 63
Department of the South	94	13,630 00	145 00
Department of Texas	370	49,010 00	132 46
Department of the Missouri	501	63,306 30	126 36
Department of the Platte	636	82,692 00	130 02
Department of Dakota	11	1,529 00	139 00
Department of California	254	27,966 00	110 11
Department of the Columbia	15	1,725 00	115 00
Depot of Washington	14	3,165 00	225 07
Total	1,938	253,800 80	.....

The amount appropriated for the purchase of cavalry and artillery horses for the fiscal year was $300,000. The money not expended has been directed to be turned into the Treasury.

Mules.

Where purchased.	Number.	Total cost.	Average.
Department of the East	1	$225 00	$225 00
Department of the South	27	4,774 94	176 85
Department of Texas	246	22,953 38	93 31
Department of the Missouri	1,800	254,702 20	141 53
Department of the Platte	140	21,980 00	157 00
Department of Arizona	122	14,640 00	120 00
Department of the Columbia	27	2,295 00	85 00
Depot of Washington	12	2,800 00	233 33
Depot of Jeffersonville	22	3,602 50	163 75
Total	2,397	328,033 02	.....

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The following is a tabular statement of the sales of public animals in the different departments, showing number sold and amount realized:

Departments.	Horses.		Mules.		Total.	
	No.	Amount.	No.	Amount.	No.	Amount.
Department of the East	21	$1,195 66	2	$127 00	23	$1,322 66
Department of the Lakes	.....	.....	1	52 20	1	52 20
Department of the South	111	6,355 24	7	373 35	118	6,728 59
Department of the Gulf	9	630 00	4	380 00	13	1,010 00
Department of Texas	321	10,267 28	42	1,471 45	363	11,738 73
Department of the Missouri	225	9,735 97	84	4,223 50	309	13,959 47
Department of the Platte	209	11,195 25	36	1,436 00	245	12,631 25
Department of Dakota	25	2,302 90	14	620 56	39	2,923 46
Department of California	19	1,325 50	2	128 00	21	1,453 50
Department of Arizona	13	288 35	2	23 00	15	311 35
Department of the Columbia	84	2,513 28	5	378 00	89	2,891 28
Depot of Washington	14	815 00	1	100 00	15	915 00
Total	1,051	46,624 43	200	9,313 06	1,251	55,937 49

SUMMARY.

The following is a summary statement of the number of animals purchased, sold, died, &c., and remaining on hand during the fiscal ending June 30, 1873:

On hand, purchased, &c.	Horses.	Mules.	Oxen.
On hand July 1, 1872	9,729	8,758	117
Purchased	1,938	2,397	5
Taken up, &c	96	59	.....
To be accounted for	11,763	11,214	122
Sold	1,051	200	.....
Died	424	489	12
Lost and stolen	158	100	.....
Total sold, died, &c	1,633	789	12
On hand June 30, 1873	10,130	10,425	110

ESTIMATES AND REQUISITIONS.

Annual estimates for regular and miscellaneous supplies required during the fiscal year at the various posts within the Military Division of the Missouri were received, and instructions given as to method of providing the stores deemed necessary by the Quartermaster-General.

During the fiscal year requisitions for miscellaneous supplies were received as follows, and instructions given in relation thereto:

Military Division of the Pacific	4
Military Division of the Missouri	122
Military Division of the South	77
Military Division of the Atlantic	34
Depot of Washington	16
Military Academy at West Point	9
Miscellaneous sources	36
Total	298

FIRE-EXTINGUISHERS.

At the beginning of the fiscal year the fire-extinguisher known as the Babcock was generally in use at the various military posts, and up to

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March 1, 1873, this pattern was supplied when called for and deemed necessary. Subsequent to that date the Champion fire-extinguisher, manufactured at Louisville, Ky., has been supplied at no greater cost. The use of the Babcock, however, has not been discontinued.

The Louisville company also manufacture an extinguisher having two cylinders, of a capacity of 150 gallons each, mounted on wheels, to be drawn by men or horses. Upon approval by the Secretary of War, one of these machines, supplied with 200 feet of hose and a force-pump, was ordered March 27, 1873, for Omaha Barracks, and one has since been ordered for Fort Brown, Texas.

Within the fiscal year fire-extinguishers have been supplied to the following posts:

Santa Fé, N. Mex., (Babcock)	8
Shelbyville, Ky., (Babcock)	2
Madison Barracks, N. Y., (Babcock)	3
Fort Mackinac, Mich., (Babcock)	1
Frankfort, Ky., (Babcock)	2
Fort Macon, N. C., (Babcock)	2
Charleston, S. C., (Champion)	2
Little Rock, Ark., (Champion)	3
Fort Gibson, Ind. T., (Champion)	4
Total	27

WARREN COOKERS.

Reference was made in the report of last year to experiments with the patent cooker invented by Capt. F. P. Warren, of the English navy, the results of which had not then been fully communicated to this office. Since that time reports have been received from numerous officers, some of whom speak highly of the merits of the cooker, while others do not consider its use desirable for the Army. In view of the difference of opinion expressed by officers the Quartermaster-General has not deemed it advisable to supply them for general use of the Army.

ARMY WAGONS.

The following is a statement of wagons, ambulances, and harness on hand in the Quartermaster's Department, United States Army, as shown by the last returns of officers received at this office:

	Serviceable.	Not serviceable.
Army wagons	3,107	88
Spring wagons	125	4
Ambulances	240	7
Wagon harness	23,411	633
Ambulance harness	2,148	29

For several years past the Army wagons, subjected to the hard usage of the service in the West, have been made to answer requirements only by frequent and extensive repairs. These wagons, as also the stock in store at depots, were bought during the war, and are therefore from eight to ten years old.

A careful inspection of those in store revealed the fact that the timbers of most of them were so unsound, from various causes incident to their age, as to be unfit for hard service upon the road.

From reports of inspection made by various officers it was found necessary that nearly all of the wagons in use in the Military Division of the Missouri should be replaced by new ones. For this purpose the

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chief quartermaster of the division reported 480 new wagons needed. Accordingly 100 new wagons were bought in open market in Philadelphia, and 85 shipped during the spring months to the Department of Dakota, and 14 to the Department of the Platte, leaving to be shipped 381 wagons. In addition to these, and to meet the wants of the Yellowstone expedition, 150 new wagons were purchased at same place in open market and shipped to Fort Abercrombie, Dak. The cost of these 250 wagons, purchased in open market to meet an emergency, was $175 each.

By authority of the honorable Secretary of War, and after due advertisement, a contract was made July 12, 1873, by the depot quartermaster, Philadelphia, with the lowest bidder, for 300 Army wagons, at $149.50 each.

With approval of the Secretary of War, the purchase of 10 spring wagons for use at various posts and stations was authorized.

YELLOWSTONE EXPEDITION.

This expedition was organized to survey the line of the Northern Pacific Railroad through the country from the Missouri River to the Yellowstone, and westward in Montana. It entered the field in July, 1872, and was supplied by the Quartermaster's Department, under direction of the local military authorities, with needed means of transportation from stock on hand, with the exception of a number of hired teams.

At the close of the season's work of 1872 the commanding officer of the expedition reported that the transportation equipment furnished for service with the expedition was found unfit for active operations in the rugged country over which it was required to pass.

In order to facilitate the operations of the expedition during the present season, the Quartermaster-General, upon approval of the Secretary of War, directed the supply of new material, or such as was in every respect as good as new.

In addition to the number found suitable and supplied from the Department of Dakota, 150 entirely new wagons were furnished from Philadelphia. To complete the trains of the expedition there were purchased 1,058 mules, including 36 ambulance, 12 artillery, and 16 saddle mules. Such new harness and other articles as were necessary to thoroughly equip the trains were also purchased.

EXPLORING EXPEDITIONS.

By direction of the Secretary of War the surveying expedition west of the one hundredth meridian, under command of Lieut. George M. Wheeler, of the Engineer Corps, has, during the past fiscal year, been supplied with forage, animals, wagons, &c., for transportation of escort and its supplies, and various miscellaneous stores.

Sale was authorized to civilian employés, at cost price to Government, of such quartermaster's stores as they required.

Sales of partially unserviceable animals and quartermaster's stores were also, by approval of the Secretary of War, made to Prof. F. V. Hayden, United States geologist, for the continuation of his geological and geographical explorations in Colorado Territory.

Every facility consistent with laws and orders has, by authority of the War Department, been afforded by this Department to the expedition under direction of Mr. Archibald Campbell, American commissioner for the survey of the northwestern boundary.

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IRON-HUB WHEELS.

The attention of this Office having been directed to the early decay of the Army wagons in the dry climates of Arizona and New Mexico, principally owing to the shrinkage of timbers, the Quartermaster-General, after correspondence with the officers of the Military Division of the Pacific, ordered the parts of 100 wagons to be gotten out in the rough at Philadelphia, and shipped to Arizona; these to be accompanied by iron hubs for the wheels.

In the early part of this year instructions were issued for shipment to Texas, New Mexico, Dakota, and Arizona of sample sets of certain patents of metal-hub wheels adopted in general mercantile use.

It was directed that the comparative merits of these wheels be tested by the use of one front and one hind patent hub wheel upon one side of the same wagon, with one front and one hind wheel of the regulation pattern on the other side; the results to be carefully noted and reported to this Office. No reports have yet been received.

HORSESHOES AND SHOEING MATERIAL, SMITHS' AND SADDLERS' TOOLS.

By General Orders No. 2, War Department, Adjutant-General's Office, January 2, 1873, the saddlers' tools and materials, the smiths' tools and materials, the tool-bags, and the mountain-howitzer forges, with their tools and materials, prescribed by General Orders No. 60, War Department, Adjutant-General's Office, June 29, 1872, for use of the cavalry service, were directed to be supplied by the Ordnance Department. Pursuant to this order the transfer of large quantities of these stores has been made to the Ordnance Department.

THE EPIZOOTIC.

During the fall of 1872, and extending into the spring of 1873, a horse epidemic, commonly called the epizootic catarrh, swept over the country, causing great destruction of animals.

The officers of this department adopted such remedies as their judgment and experience suggested, with, in general, the most successful results.

The chief quartermaster Department of the East published, in a circular dated October 28, 1872, a method for the treatment of the disease, with certain prescriptions for the cure of severe cases. Reports show that in many cases throughout the various military departments the disease yielded to this treatment.

In the month of January, 1873, the Secretary of War communicated the following simple preventive and remedy for the disease, which was made known at once to all officers of this department, with directions for its communication to all officers serving under their direction, having charge of public animals: "One teaspoonful chlorate of potash, twice a day to four horses; put in a pail of water, and let each horse drink its proportion." The losses of public animals by this disease, so far as reported to this Office, were very light. Much inconvenience was, however, occasioned to the transportation and cavalry service during the prevalence of the disease.

CAVALRY REMOUNTS.

In addition to the horses purchased as needed from time to time, a special remount of the several regiments of cavalry was authorized to be made early this spring. For this purpose purchase was authorized

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of 1,200 horses, to be apportioned among the regiments as follows: First Cavalry, none; Second Cavalry, 175; Third Cavalry, none; Fourth Cavalry, 175; Fifth Cavalry, 150; Sixth Cavalry, 100; Seventh Cavalry, 150; Eighth Cavalry, 150; Ninth Cavalry, 150; Tenth Cavalry, 150.

The animals for the Second, Sixth, Seventh, and Tenth Regiments were ordered purchased in Missouri, Iowa, and adjoining States; those for the Fifth Regiment in California; those for the Fourth Regiment in Texas; those for the Eighth Regiment in Leavenworth and vicinity and Colorado Territory; and those for the Ninth Regiment at points to be designated by the commanding general, Department of Texas.

The purchases were ordered made by boards of officers, constituted by the department commanders. Each board was to have upon it a quartermaster and one or two officers of the regiment for which the horses were required; the boards to move from place to place, and after proper advertisement by posters, making known the days on which they would be at certain places, to purchase, not from "middlemen," but from "farmers and stock-raisers," the best horses presented in lots from one upward.

APPROPRIATION FOR REGULAR SUPPLIES.

The regular appropriation under this heading was	$4,000,000 00
The deficiency appropriation	310,000 00
Total	4,310,000 00

Information as to remittances made, and their classification, will be found in the annual report of the finance branch of this Office.

At the close of the fiscal year there remained in the Treasury but $1,685.55 to the credit of the appropriation. This balance, as also the funds then in hands of officers, will not be sufficient to meet the indebtedness of the year, and a deficiency appropriation will be necessary.

BARRACKS AND QUARTERS.

MILITARY BUILDINGS.

During the year the construction of one hundred and twenty new buildings has been authorized. They include barracks, officers' quarters, stables, store-houses, guard-houses, &c. They are at military posts in the States of California, Louisiana, Florida, Michigan, South Carolina, Tennessee, Texas, Kansas, New York, Maryland, North Carolina, Oregon, Nevada, Kentucky, Georgia, Nebraska, Pennsylvania, Minnesota, Maine, Iowa, Connecticut, Virginia, and in Territories of Dakota, New Mexico, Montana, Washington, Arizona, Utah, Colorado, Indian Territory, and District of Columbia. Their estimated cost was $245,544.87.

WHARVES.

Authority has been given for the construction and repair of wharves to the amount of $18,111.32.

REPAIRS.

Upon special estimates submitted to the Secretary of War, authority has been given to make repairs, alterations, &c., of public buildings, and for construction and repairs of cisterns, &c., at the various military posts to the amount of $228,796.49.

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NEW POSTS.

Two new posts have been authorized during the year in Arizona—one at or near Tucson, and one near the mouth of the San Carlos River. These posts are for four companies each.

The estimated cost of these posts, as originally reported, was $53,000 for the former, and $54,609 for the latter; "$35,000 is the extreme sum which the Secretary of War authorizes to be expended for both. Labor of troops to be employed when possible." The former post is reported as being on the Rillito, about seven miles from Tucson, and is known as "Camp Lowell."

The hutting of one company of infantry at Otter Crossing, Northern Pacific Railroad, having been determined by the department commander as necessary and urgent, he directed the expenditure of $2,675 for the work; the season being advanced, would not admit of first submitting the subject to the War Department.

The division commander on investigation, considering the work "very necessary," directed that it be continued. Action and expenditure approved by the Secretary of War in October last, and funds remitted.

Sheltering for officers and men at James River Crossing, Northern Pacific Railroad, subsequently known as Fort Cross, and more recently as Fort Seward, was authorized in letter of division to department commander July 8, 1872. Remittance of $30,000 for this work was authorized by the Secretary of War. The construction of a provisionary hospital has since been authorized.

The division commander also, in a letter of July 10, 1872, to the department commander, authorized expenditure of $20,000 for shelter of men and officers at Tulerosa, N. Mex.; and the Secretary of War has since authorized remittance of the funds.

Reference was made in last annual report to the construction of posts at the Northern Pacific Railroad crossing of the Missouri River and at Beaver City, Utah. During the past fiscal year these posts have been partially constructed. That at Northern Pacific Railroad crossing of the Missouri is known as Fort Abraham Lincoln.

Recapitulation of the expenditures specially authorized for construction of new buildings at established posts; construction and repair of cisterns, miscellaneous repairs to buildings, construction of new posts and hutting troops, and how distributed.

Department of California	$48,640 96
Department of Texas	44,143 19
Department of the East	75,207 27
Department of the South	15,810 79
Department of the Platte	51,012 51
Department of the Gulf	42,360 66
Department of the Columbia	9,490 00
Department of Arizona	62,707 30
Department of the Missouri	151,795 04
Department of Dakota	78,120 96
Department of the Lakes	839 00
Total	580,127 68

Of this sum, constructions, repairs, &c., to the amount of $122,060, though approved by the War Department during the fiscal year, were not to be commenced, nor any expenditures incurred therefor, until after July 1, 1873, when the new appropriation became available.

The Secretary of War, on January 14, 1873, in a communication to

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the House of Representatives, recommended an appropriation of $100,000 by Congress for rebuilding the post of Fort Griffin, Texas, in a manner suitable for the accommodation of six companies. No appropriation was made by Congress.

HOSPITAL BUILDINGS.

During the fiscal year, construction, repairs to, and alterations of military hospital buildings throughout the country have been authorized by the Secretary of War at a cost of $77,754.70; work to the amount of $10,916.75, though approved during the year, and included in the $77,754.70, was not to be commenced, nor any expenditure incurred, until the beginning of the new year.

The following list gives the locality of the hospitals and amount of expenditure authorized at each:

Fort Abercrombie, Dak., $82.24; Angel Island, Cal., $190; Fort Barrancas, Fla., $1,163; Fort Brady, Mich., $350; Baton Rouge, La., $4,689.50; Beale's Springs, Ariz., $4,500; Camp Bidwell, Cal., $400; Camp Baker, Cal., $306.30; Fort Boise, Idaho, $843.83; Fort Concho, Tex., $1,800; Cheyenne Agency, Dak., $500; Fort Duncan, Tex., $2,500; Fort Ellis, Mont., $300; Fort Foote, Md., $215.17; Fort Gratiot, Mich., $701.85; Fort Gibson, Ind. T., $136.80; Fort Hamilton, New York Harbor, $580; Fort Hays, Kans., $2,000; Jackson, Miss., $550; Jackson Barracks, La., $1,157.50; Key West, Fla., $4,490.10; Lower Brulé Agency, Dak., $420; Little Rock, Ark., $1,192.40; Fort Larned, Kans., $189.14; Fort Leavenworth, Kans., $580; Fort Laramie, Wyo., $8,000; Fort Lyon, Colo., $150; Fort McHenry, Md., $250; Fort Mackinac, Mich., $30; Camp Mojave, Ariz., $4,000; McPherson Barracks, Ga., $200; Fort Monroe, Va., $250; Fort McIntosh, Tex., $198.50; Fort Niagara, N. Y., $150; Newport Barracks, Ky., $7,000; Omaha Barracks, Neb., $205.37; Fort Porter, N. Y., $481; Presidio, Cal., $1,226.75; Fort D. A. Russell, Wyo., $600; Fort Ripley, Minn., $1,000; Fort Riley, Kans., $134; Camp Supply, Ind. T., $4,824; Fort Snelling, Minn.. $550.50; Fort Sullivan, Me., $246; Savannah, Ga., $1,870; Fort Sully, Dak., $748; Fort Seward, Dak., $4,000; Fort Selden, N. Mex., $200; Fort Shaw, Mont., $350; Fort Sanders, Wyo., $350; Thomas's Barracks, Ala., $500; Fort Union, N. Mex., $1,370.09; Fort Wadsworth, New York Harbor, $146; Fort Wingate, N. Mex., $3,818.16; Fort Wayne, Mich., $1,793.50; Fort Wood, New York Harbor, $75; Yerba Buena Island, Cal., $1,200; Yuma Fort, Cal., $2,000.

The appropriation for construction and repair of hospitals was $100,000.

At the close of the fiscal year there remained in the Treasury to the credit of appropriation for hospitals for 1872–'73, $15,473.49.

DEPOT BUILDINGS AT SAN ANTONIO, TEX.

In the act making appropriations for sundry civil expenses of the Government for the fiscal year ending June 30, 1874, and for other purposes, approved March 3, 1873, provision is made for the construction at this station of depot buildings, including shops, offices, and commissary and quartermaster's store-room, and appropriates $100,000 therefor. The Secretary of War, on March 24, 1873, directed the Quartermaster-General to "allow no action to be taken by any officer of the Quartermaster's Department looking to the erection of these depot buildings until further instructions." A copy of this order was communicated to the Department Quartermaster.

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BUILDINGS, ETC., SOLD.

The sale of ninety buildings of various dimensions, together with fences, remnants of old iron bridges, &c., located at different places throughout the country, has been authorized.

BUILDINGS TRANSFERRED.

Seven buildings at Clark's Point, Mass., and thirteen at Fort Washington, Md., heretofore in charge of the Quartermaster's Department, have, by direction of the Secretary of War, been transferred to the custody of the Engineer Department.

The property known as the "State arsenal," at Savannah, Ga., held by the United States Government since the occupation of that city by the army of General Sherman, has, by direction of the War Department, been restored to that State.

LAND TO BE SURRENDERED, SOLD, ETC.

On October 31, 1863, February 12, 1864, and February 28, 1865, certain lands were conveyed by deed to the United States, in Wilmington, Los Angelos County, Cal., in consideration of $1.

A large number of buildings were erected thereon by the United States during the war, known as Drum Barracks and Wilmington Depot.

The United States not actually requiring the further use of the premises, Congress, under act approved February 25, 1873, directed the Secretary of War to reconvey said grounds to the original parties, after the removal or sale of the buildings, "as shall be most for the interests of the United States." Orders for the sale of the buildings have been issued.

In 1871, certain persons conveyed to the United States by a deed, (pronounced valid by the Department of Justice,) certain lands in Omaha, Neb., in consideration of the payment of $10.

It was at that time contemplated to construct permanent quarters and offices for department headquarters. Legislation since has prevented the construction of the buildings, and it has also been decided that the site is not a convenient one.

The parties who deeded the land have made application to have it restored to them, and reconveyance has been recommended by the Lieutenant-General of the Army and this office. The subject is awaiting the final decision of the Secretary of War.

On July 25, 1828, and January 13, 1829, the United States purchased of Joseph and Elmira Houlton certain lands at Houlton, county of Washington, State of Maine, for $639.21. The United States having no further use of the eighteen buildings which had been subsequently erected thereon, the Secretary of War directed that they be sold at public auction. The sale was made July 12, 1871, and $345.25 realized therefrom.

By act of Congress approved March 14, 1872, the Secretary of War was authorized to sell and convey this land, if in his opinion it should be for the interests of the Government to sell the same, reserving to the county of Aroostook so much thereof as was found to be necessary for the monuments therein erected, by the consent of the War Department, to establish a meridian line, which shall be granted to said county, provided that the land so granted shall not exceed in value the sum of $500. By direction of the War Department the division quartermaster was instructed to advertise and sell so much of this land as was con-

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templated by the act of Congress, and to take proper steps with a view to the transfer of the remainder to the county of Aroostook. The site contemplated to be sold, containing 24 acres 74½ rods, was duly advertised by posters, May 19, 1873, and on June 19, 1873, was sold for $350 to Silas T. Plummer and Lewis B. Johnson.

The value of the land reserved from sale being greatly within the limit prescribed by the act of Congress, a deed conveying the land to the inhabitants of Aroostook County is now before the War Department for proper action.

The Quartermaster-General, in his last annual report, represented to the War Department the unfortunate condition of the tenure of the military posts on the frontier in Texas, and recommended that the attention of Congress be called to this subject, and that the Secretary of War be clothed with authority to purchase the sites of such military posts as are already, or as may be within a few years, established in Texas, at prices which he may determine to be just and reasonable, considering the value of the land before its occupation by the United States.

Congress, by act approved March 3, 1873, authorized the Secretary of War to purchase, at a fair price, (to be determined by a board of three officers to be appointed by him, whose report shall be subject to the approval or rejection of the President, and the confirmation thereof by Congress,) such lands in the State of Texas as may be necessary for the use of the United States for forts and military posts. (For full text of act see 17th Statutes, page 614.)

Since the close of the fiscal year a board of officers, as directed by the act, has been appointed by the Secretary of War, and copies of all papers in possession of this office, containing useful information relative to the sites occupied, have been furnished to be laid before the board.

ARTESIAN WELLS.

The sinking of the artesian well at Madison Barracks, N. Y., under authority given in October, 1870, has, from recent reports, proved a success. It affords an unfailing supply of good water, winter and summer. Its cost was $550, depth 99 feet. The sinking of two more of same depth, at a cost of $1,100, has been authorized.

Congress, on June 8, 1872, authorized the Secretary of War to expend the sum of $10,000, or so much thereof as may be necessary, for the purpose of sinking an artesian well on the Fort D. A. Russell military reservation, in the Territory of Wyoming.

The Secretary of War having directed, in August last, that steps be taken at once for the sinking of the well, and authorized the remittance of funds, the requisite instructions were accordingly issued to the division quartermaster. After boring through gravel, sand, clay, soapstone, boulders and rock to the depth of 410 feet, (76 feet having caved in,) and after expending $8,195.38 thereon without any promise of success, work was abandoned. With the remainder of the money a second well was commenced and had been sunk (up to May 2, 1873) to the depth of 275 feet. To continue the work the Secretary of War authorized a remittance of an additional $3,000.

POST CEMETERIES.

Authority has been granted by the Secretary of War, and instructions given by this office during the fiscal year, for erection of head-boards at the post cemetery at Fort Duncan, Tex.; board-fence for post ceme-

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tery at Fort Winnebago, Wis., and completion of the adobe wall inclosing post cemetery at Fort Bliss, Tex.

In August last the Secretary of War directed the Quartermaster-General to make arrangements for the removal of the remains of such soldiers and their families as were buried in the cemeteries at the abandoned posts of Fort Arbuckle and Washita, to the national cemetery at Fort Gibson, Ind. T. Instructions were accordingly issued to the division quartermaster.

From the report received it appears there were one hundred and thirty-one graves at these posts and in their neighborhood. All of the graves were represented as being in bad condition, very few having any marks or stakes.

A contract was made in October last with the lowest responsible bidder to perform the work of disinterring, removing, and re-interring the bodies at the rate of $9.40 for each body, whole job to be completed by November 25, 1872.

In March, 1872, the War Department authorized construction of stone walls around the post cemeteries at Fort Kearney, Nebr., and Fort Sedgwick, Colo., but it afterward appearing that the cost thereof would be some $30,000, it was deemed more advisable to remove the remains of deceased soldiers and their families therein interred to some more permanent post, and the Secretary of War directed their removal, and re-interment at the cemetery at Fort McPherson, Nebr., distant about one hundred miles. The estimated cost of the work was $3,000, transportation being furnished by the United States.

The data on file in this office as to location of post cemeteries throughout the country, number of graves, names of deceased soldiers and others therein interred, &c., being of a very incomplete character, chief quartermasters have been requested during the year to supply the required information.

Reports covering one hundred and thirteen such cemeteries have thus far been received, and when all others have been heard from it is contemplated to have this important information recorded in a proper book of record for reference, &c.

POSTS ABANDONED.

During the year the War Department authorized the abandonment of the posts of Taylor Barracks, Ky., old camps Grant, Lowell, and Crittenden, Ariz., Fort Phœnix, Mass., and Fort McRae, N. Mex.

FIRES.

Seven fires have been reported during the fiscal year.

The barracks at Fort Phœnix, near New Bedford, Mass., were destroyed on August 27, 1872.

Two mills at Fort Buford, Dak., were destroyed November 5, 1872.

One set of company quarters, 100 feet by 15 feet, with kitchens, 20 feet by 15 feet, at Fort Saint Philip, La., were destroyed November 15, 1872.

One set of officers' quarters at Fort Stockton, Tex., were destroyed, together with a few articles of quartermaster's stores, on November 17, 1872.

A fire occurred in one of the two-story brick barracks, 182 feet by 34 feet by 30 feet, at Baton Rouge, La., November 18, 1872, destroying all the wood-work, &c. Repair of this building has since been authorized.

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On January 28, 1873, a fire occurred at the Saint Louis arsenal-depot, Mo., which completely destroyed the commissary and quartermaster's store-house, together with property belonging to the Quartermaster's Department therein stored.

The commanding officer's quarters at Camp Halleck, Nebr., were destroyed by fire June 23, 1873. The adjoining quarters were badly damaged from the intense heat.

RESERVATIONS.

Seven reservations have been declared by the President during the year, viz: Fort Whipple, Va., July 26, 1872; Camp Harney, Oreg., December 2, 1872; Sibley Island, Dak., February 11, 1873; Fort Abraham Lincoln, Dak., February 11, 1873; Fort Boisé, Idaho, April 9, 1873; Beaver City, Utah, May 12, 1873; certain timber-lands in Arizona Territory, June 20, 1873.

PUBLICATIONS.

In 1872 the Secretary of War authorized the publication, for information of officers of the Army, of "Outline-descriptions of United States military posts and stations," compiled from information furnished by division commanders and quartermasters. The work gives, in a succinct form, location of posts; number, description, and condition of buildings; nearest supply-depot; resources; communications; description of country, &c. The information therein contained is valuable to officers and to this office. Military bureau officers, department and division commanders, regular quartermasters, and each arsenal and garrisoned post have been provided with a copy thereof.

The Secretary of War, on recommendation of this office, authorized to be published, for the information of officers on duty in the Quartermaster's Department, certain extracts from Creecy's Encyclopedia of Civil Engineering, relative to the durability of Pisé walls, and the mode of building in Pisé, together with the descriptive notes on the manner of constructing concrete walls, furnished by the acting assistant quartermaster at Sidney Barracks, Nebr., where a building for laundresses' quarters was constructed, last summer, of this material. On personal inspection by the Lieutenant-General of the Army, this mode of construction was strongly recommended by that officer for barracks and quarters west of the Missouri River. It is believed one or the other of these methods of building is applicable at nearly every military post or station on the frontier, and that either is cheaper than adobes. A copy of these extracts has been furnished to all officers of this Department.

APPROPRIATION FOR BARRACKS AND QUARTERS.

The amount of the regular appropriation for barracks and quarters was	$1,250,000 00
For amount of the deficiency appropriation	250,000 00
Total	1,500,000 00

Information as to remittances made and their classification will be found in annual report of the finance branch of this office.

At the close of the fiscal year $31,488.93 of the appropriation for barracks and quarters remained undrawn at the Treasury. This balance, as also funds then in hands of officers, will be absorbed in payment of outstanding indebtedness for materials, rents, hire of mechanics, &c., &c., and, in addition, a deficiency appropriation will probably be necessary to meet the expenses of the year.

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CLAIMS.

The following statements exhibit the number of transportation claims and accounts, and claims under act of July 4, 1864, and miscellaneous claims on hand, July 1, 1872, received and acted upon during the year, and remaining on hand June 30, 1873:

Statement of accounts and claims in the transportation division, Quartermaster-General's Office, for the fiscal year ending June 30, 1873.

	No.	Value.	No.	Value.
Number of accounts and claims on hand July 1, 1872	156	$277,644 45		
Number of accounts received during the fiscal year	624	1,299,290 39		
Number of claims received during the fiscal year	458	387,331 69		
Total number of accounts and claims on hand and received			1,238	$1,964,266 53
Number of accounts referred for settlement during fiscal year	571	814,622 56		
Number of claims referred for settlement during fiscal year	373	214,305 06		
Number of claims transferred to other branches	9	512 89		
Number of claims rejected during the fiscal year	65	318,429 55		
Number of claims suspended at close of fiscal year	8	3,002 75		
Total number of accounts and claims referred, rejected, and suspended			1,026	1,350,872 81
Number of accounts awaiting action July 1, 1873	68	471,198 80		
Number of claims awaiting action July 1, 1873	144	142,194 92		
Total number and amount	212	613,393 72	212	613,393 72

Statement of claims under act of July 4, 1864, chapter 240, in the Quartermaster-General's Office, for the fiscal year ending June 30, 1873.

	No.	Amount.	No.	Amount.
On hand July 1, 1872, which had previously been suspended or had received no decisive action	10,351	$6,857,006 56		
Received during the year	1,963	2,024,725 16		
Total number on hand and received			12,314	$8,881,731 72
Decisive action taken during the year:				
Approved	642	296,775 90		
Reductions on claims approved		318,436 52		
Rejected	325	443,689 75		
Total upon which final action has been taken			967	1,058,902 17
Remaining on hand June 30, 1873			11,347	7,822,829 55

Statement of miscellaneous claims in the Quartermaster-General's Office for the fiscal year ending June 30, 1873.

	No.	Amount.	No.	Amount.
On hand July 1, 1872, which had previously been suspended or had received no decisive action	14,485	$7,558,791 93		
Received during the year	3,375	785,480 63		
Total number on hand and received			17,860	$8,344,272 56
Decisive action taken during the year:				
Approved	3,261	654,389 15		
Reductions on claims approved		38,462 72		
Rejected	553	176,299 82		
Total upon which final action has been taken			3,814	869,151 69
Remaining on hand June 30, 1873			14,046	7,475,120 87

NOTE.—The examination of the claims filed during previous years has been continued, and all the cases presented during the year have received preliminary examination.

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The following is a statement of the public funds in my possession during the fiscal year:

On hand July 1, 1872	
Received from officers during the year	$674,355 15
Received from the Treasury Department during the year	162,265 39
Received from sales of railway property and other sources	76,432 82
Total received during the year	913,053 36

Disbursed during the year	$70,186 48
Transferred to other officers during the year	766,371 61
Deposited to the credit of the Treasurer of the United States during the year	76,495 27
Remaining on hand June 30, 1873	
Total disbursed, &c., during the year	913,053 36

Submitted herewith are certain abstracts and statements, to which attention is invited, for information in detail relative to the several subjects of this report. They are as follows:

A.—Statement of the indebtedness to the United States of southern railroad companies on account of purchase of railway material for the fiscal year.

B.—Statement of all troops and stores transported under direction of the Quartermaster's Department during the fiscal year.

C.—Abstract of contracts made by officers of the Quartermaster's Department for wagon transportation during the fiscal year.

D.—Abstract of contracts made by officers of the Quartermaster's Department for water transportation.

E.—Statement of vessels chartered and employed by officers of the Quartermaster's Department during the fiscal year.

F.—Statement of vessels owned or purchased by the Quartermaster's Department during the fiscal year.

Very respectfully, your obedient servant,

M. I. LUDINGTON,
Quartermaster, U. S. A.

Brig. Gen. M. C. MEIGS.
Quartermaster-General, U. S. A.

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A.—*Statement of the indebtedness of certain railway companies for railway material and rolling-stock purchased under provisions of Executive orders of August 8 and October 14, 1865, and orders of the Quartermaster-General, U. S. A., for the fiscal year ending June 30, 1873.*

Number.	Name of company indebted to the United States, July 1, 1872.	Value of property sold.	Interest on same to June 30, 1873.	Total expenses to June 30, 1873.	Total principal, interest, and expenses to June 30, 1873.	Balance of principal unpaid, July 1, 1872.	Balance of interest unpaid July 1, 1872.	Expenses unpaid July 1, 1872.	Total principal, interest, and expenses unpaid, July 1, 1872.
1	Alexandria, Loudoun and Hampshire	$62,592 96	$20,853 02	$175 73	$83,621 71	$9,335 89	$115 75	.....	$9,451 64
2	Alabama and Florida, for repairs	27,109 04	.....	.....	27,109 04	11,380 81	.....	.....	11,380 81
3	Alabama and Chattanooga	30,248 52	13,608 04	543 03	44,399 59	17,881 45	2,185 07	$419 05	20,485 57
4	East Tennessee and Georgia	366,183 02	160,986 77	2,322 73	529,492 52	350,447 58	28,602 72	.....	379,051 30
5	East Tennessee and Virginia	265,655 65	116,906 07	2,322 73	384,884 45	249,228 81	5,258 94	.....	254,487 75
6	Edgefield and Kentucky	114,772 86	64,207 96	2,345 00	181,325 82	114,772 86	53,963 95	1,745 00	170,481 81
7	Indianola	20,000 00	.....	.....	20,000 00	15,000 00	.....	.....	15,000 00
8	Knoxville and Kentucky	12,335 63	4,965 75	154 27	17,455 65	9,544 89	574 47	.....	10,119 36
9	McMinnville and Manchester	46,508 54	24,457 27	3,375 20	74,341 01	46,508 54	21,058 42	2,775 20	70,342 16
10	Mississippi, Gainesville and Tuscaloosa	33,476 39	18,825 43	67 75	52,369 57	33,476 39	6,593 33	.....	40,069 72
11	Mobile and Ohio	505,143 70	85,687 33	.....	590,831 03	74,269 05	12,832 83	.....	87,101 88
12	Mississippi and Tennessee	127,750 52	30,510 41	.....	158,260 93	7,861 15	64 46	.....	7,925 61
13	Memphis, Clarksville and Louisville	336,932 36	187,642 03	2,445 00	527,019 39	336,932 36	117,631 01	50 00	454,613 37
14	Memphis and Little Rock	153,673 89	52,252 13	75 40	206,001 42	76,769 92	4,867 19	.....	81,637 11
15	Nashville and Chattanooga	1,566,551 73	615,631 70	2,234 12	2,184,417 55	1,474,206 55	361,368 34	.....	1,835,574 89
16	Nashville and Northwestern	525,400 26	297,713 31	2,234 11	825,347 68	521,192 58	206,980 37	.....	728,172 95
17	Nashville and Decatur	405,193 92	144,407 99	302 25	549,904 26	280,820 10	60,801 73	274 35	341,896 18
18	Pacific Railroad of Missouri	125,433 65	.....	.....	125,433 65	4,611 94	.....	.....	4,611 94
19	Southwest Branch Pacific Railroad of Missouri	57,115 24	.....	.....	57,115 24	56,115 24	.....	.....	56,115 24
20	Selma, Rome and Dalton	183,276 49	85,499 45	53 95	268,829 89	128,540 37	1,593 90	.....	130,134 27
	Total	4,965,354 37	1,924,154 66	18,651 37	6,908,160 40	3,818,896 48	884,493 48	5,263 60	4,708,653 56

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A.—*Statement of the indebtedness of certain railway companies for railway material and rolling-stock purchased, &c.*—Continued.

Number.	Name of company indebted to the United States, July 1, 1872.	Interest and expenses for the year ending June 30, 1873.	Total to June 30, 1873.	Increase of the debt during the year ending June 30, 1873.	Decrease of the debt during the year ending June 30, 1873.	Total payments to July 1, 1872.	Total payments made during the year ending June 30, 1873.	Total payments made to June 30, 1873.
1	Alexandria, Loudoun and Hampshire	$615 89	$10,067 53		$2,638 11	$73,554 18	$3,254 00	$76,808 18
2	Alabama and Florida, for repairs		11,380 81		11,380 81	15,728 23	11,380 81	27,109 04
3	Alabama and Chattanooga	1,140 73	21,626 30		16,505 55	22,773 29	17,646 28	40,419 57
4	East Tennessee and Georgia		379,051 30		7,035 97	150,441 22	7,035 97	157,477 19
5	East Tennessee and Virginia		254,487 75		5,838 49	130,396 70	5,838 49	136,235 19
6	Edgefield and Kentucky	8,978 42	179,460 23	$8,978 42		1,865 59		1,865 59
7	Indianola		15,000 00		15,000 00	5,000 00	15,000 00	20,000 00
8	Knoxville and Kentucky	696 89	10,816 25	696 89		6,639 40		6,639 40
9	McMinnville and Manchester	3,995 10	74,337 26	3,995 10		3 75		3 75
10	Mississippi, Gainesville and Tuscaloosa	2,443 76	42,513 48	2,443 76		9,856 09		9,856 09
11	Mobile and Ohio	5,421 64	92,523 52	5,400 17		498,307 51	21 47	498,328 98
12	Mississippi and Tennessee	302 60	8,228 21		7,925 61	150,032 72	8,228 21	158,260 93
13	Memphis, Clarksville, and Louisville	25,196 04	479,809 41	15,180 77		47,209 98	10,015 27	57,225 25
14	Memphis and Little Rock	5,604 18	87,241 29	5,604 18		118,760 13		118,760 13
15	Nashville and Chattanooga		1,835,574 89		11,974 76	348,842 66	11,974 76	360,817 42
16	Nashville and Northwestern	38,046 93	766,219 88	38,034 73		59,127 70	12 20	59,139 90
17	Nashville and Decatur		341,896 18		36,087 55	208,008 08	36,087 55	244,095 63
18	Pacific Railroad of Missouri		4,611 94		4,611 94	120,821 71	4,611 94	125,433 65
19	Southwest Branch Pacific Railroad of Missouri		56,115 24		14,258 99	1,000 00	14,258 99	15,258 99
20	Selma, Rome and Dalton	9,131 77	139,266 04	3,194 27		129,563 85	5,937 50	135,501 35
	Total	101,573 95	4,810,227 51	83,528 29	133,257 78	2,097,932 79	151,303 44	2,249,236 23

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A.—*Statement of indebtedness of certain railway companies for railway material and rolling-stock purchased, &c.*—Continued.

Numbers.	Name of company indebted to the United States July 1, 1872.	Balance of interest unpaid July 1, 1873.	Expenses unpaid July 1, 1873.	Balance principal unpaid July 1, 1873.	Total principal, interest, and expenses unpaid July 1, 1873.	Terms of payment—Remarks.
1	Alexandria, Loudoun and Hampshire	$23 08	.....	$6,790 45	$6,813 53	Due June 30, 1873, $45,000. First-mortgage bonds deposited as collaterals.
2	Alabama and Florida, for repairs	.....	.....	.....	.....	Debt discharged January 8, 1873.
3	Alabama and Chattanooga	46 41	.....	3,933 61	3,980 02	Due April 30, 1871. Postal earnings to September 30, 1873, will more than liquidate the debt.
4	East Tennessee and Georgia	21,567 75	.....	350,447 58	372,015 33	Companies consolidated. Debts compromised for $195,000; $5,000 cash, balance payable, half in 10 and half in 15 years from January 1, 1872, with 4 per cent. interest.
5	East Tennessee and Virginia	.....	.....	248,649 26	248,649 26	
6	Edgefield and Kentucky	62,342 37	$2,345 00	114,772 86	179,460 23	Due April 30, 1871.
7	Indianola	.....	.....	.....	.....	Debt discharged May 24, 1873.
8	Knoxville and Kentucky	1,271 36	.....	9,544 89	10,816 25	Due August 30, 1869. Suit pending.
9	McMinnville and Manchester	24,453 52	3,375 20	46,508 54	74,337 26	Due July 1, 1869. Suit pending.
10	Mississippi, Gainesville and Tuscaloosa	9,037 09	.....	33,476 39	42,513 48	Due August 31, 1869. Company bankrupt.
11	Mobile and Ohio	18,233 00	.....	74,269 05	92,502 05	Due July 31, 1871.
12	Mississippi and Tennessee	.....	.....	.....	.....	Debt discharged May 31, 1873.
13	Memphis, Clarksville and Louisville	132,861 78	.....	336,932 36	469,794 14	Due October 31, 1869.
14	Memphis and Little Rock	10,471 37	.....	76,769 92	87,241 29	Interest and $1,000 payable monthly in money. Postal and transportation service to be credited.
15	Nashville and Chattanooga	349,393 58	.....	1,474,206 55	1,823,600 13	Compromised for $1,000,000; payable, half in 10 and half in 20 years from June 1, 1871, with 4 per cent. interest.
16	Nashville and Northwestern	245,015 10	.....	521,192 58	766,207 68	Due December 30, 1870. Suit pending.
17	Nashville and Decatur	24,988 53	.....	280,820 10	305,808 63	Compromised for $70,000; $6,000 cash, balance in 10 years from July 1, 1872, with 5 per cent. interest.
18	Pacific Railroad of Missouri	.....	.....	.....	.....	Debt discharged July 12, 1873.
19	Southwest Branch Pacific Railroad of Missouri.	.....	.....	41,856 25	41,856 25	Payable in transportation; half to be applied.
20	Selma, Rome and Dalton	8,489 07	.....	124,839 47	133,328 54	$2,000 payable monthly in money. Postal and Government transportation to be credited.
	Total	908,194 01	5,720 20	3,745,009 86	4,658,924 07	

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The following-named railroad companies have discharged their indebtedness to the United States.

Number.	Name of company.	Value of property sold.	Interest on same to June 30, 1873.	Total expenses to June 30, 1873.	Total principal, interest, and expenses to June 30, 1873.	Total payments made to June 30, 1873.	Total principal, interest, and expenses unpaid to July 1, 1873.	Remarks.
1	Richmond, Fredericksburgh and Potomac	$7,449 27	.....	.....	$7,449 27	$7,449 27	.....	Debt discharged January 1, 1866.
2	Georgia Railroad and Banking Company	11,935 05	.....	.....	11,935 05	11,935 05	.....	Debt discharged January 12, 1866.
3	Southwestern	46,159 89	.....	.....	46,159 89	46,159 89	.....	Debt discharged May 4, 1866.
4	Macon and Western	83,638 15	.....	.....	83,638 15	83,638 15	.....	Debt discharged November 24, 1866.
5	South Carolina	23,458 50	$1,646 76	.....	25,105 26	25,105 26	.....	Debt discharged January 31, 1867.
6	Muscogee	5,244 20	424 57	.....	5,668 77	5,668 77	.....	Debt discharged May 15, 1867.
7	Petersburgh	65,000 00	3,633 60	.....	68,633 60	68,633 60	.....	Debt discharged August 23, 1867.
8	Memphis and Charleston	547,494 09	30,889 64	.....	578,383 73	578,383 73	.....	Debt discharged October 16, 1867.
9	Mobile and Great Northern	14,637 73	1,192 55	.....	15,830 28	15,830 28	.....	Debt discharged October 31, 1867.
10	New Orleans, Jackson and Great Northern	200,865 58	15,656 91	.....	216,522 49	216,522 49	.....	Debt discharged February 29, 1868.
11	Mississippi Central	78,460 00	6,368 56	.....	84,828 56	84,828 56	.....	Debt discharged April 11, 1868.
12	Virginia and Tennessee	102,880 00	14,371 05	.....	117,251 05	117,251 05	.....	Debt discharged April 16, 1868.
13	Montgomery and West Point	38,559 66	3,324 93	.....	41,884 59	41,884 59	.....	Debt discharged July 16, 1868.
14	Virginia Central	70,000 00	10,364 66	.....	80,364 66	80,364 66	.....	Debt discharged July 21, 1868.
15	Rome	22,086 05	1,778 57	.....	23,864 62	23,864 62	.....	Debt discharged August 10, 1868.
16	Western and Atlantic	472,944 66	70,194 71	.....	543,139 37	543,139 37	.....	Debt discharged August 27, 1868.
17	Orange and Alexandria	118,895 74	12,497 44	.....	131,393 18	131,393 18	.....	Debt discharged October 3, 1868.
18	Manassas Gap	4,623 51	864 87	.....	5,488 38	5,488 38	.....	Debt discharged October 8, 1868.
19	Wilmington and Weldon	81,500 00	9,946 31	.....	91,446 31	91,446 31	.....	Debt discharged November 4, 1868.
20	Alabama and Florida	51,912 00	6,355 18	.....	58,267 18	58,267 18	.....	Debt discharged May 31, 1869.
21	New Orleans, Opelousas and Great Western	113,773 45	11,947 35	.....	125,720 80	125,720 80	.....	Debt discharged August 21, 1869.
22	Norfolk and Petersburgh	2,112 00	.....	.....	2,112 00	2,112 00	.....	Debt discharged January 11, 1870.
23	Western North Carolina	14,269 82	2,064 08	$48 00	16,401 90	16,401 90	.....	Debt discharged June 6, 1870.
24	Atlantic and North Carolina	51,453 93	11,040 15	.....	62,494 08	62,494 08	.....	Debt discharged July 31, 1870.
25	Macon and Brunswick	26,820 00	4,861 44	61 80	31,743 24	31,743 24	.....	Debt discharged January 25, 1871.
26	Selma and Meridian	146,327 92	23,936 79	568 00	170,832 71	170,832 71	.....	Debt discharged June 13, 1871.
27	San Antonio and Mexican Gulf	48,775 19	17,048 49	4 25	65,827 93	65,827 93	.....	Debt discharged June 14, 1871.
28	Washington, Alexandria and Georgetown	324 06	.....	.....	324 06	324 06	.....	Debt discharged August 16, 1871.
29	Memphis and Ohio	106,929 13	22,998 78	.....	129,927 91	129,927 91	.....	Debt discharged October 27, 1871.
30	New Orleans and Ohio	32,150 00	13,719 95	4,647 20	50,517 15	24,728 28	$25,788 87	Company bankrupt; account, therefore, dropped from list of indebted companies.
	Total	2,590,679 58	297,147 34	5,329 25	2,893,156 17	2,867,367 30	25,788 87	

I certify the above statement to be correct.

M. I. LUDINGTON.
Major and Quartermaster, U. S. A., in Charge of Railroad Indebtedness.

QUARTERMASTER-GENERAL'S OFFICE, *September*, 1873.

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B.—*Statement of all troops and stores transported under the direction of the Quartermaster's Department during fiscal year ending June 30, 1873.*

Kind of transportation.	PASSENGERS.			ANIMALS.				STORES.					
	Officers.	Men.	Total.	Horses.	Mules.	Cattle.	Total.	Commissary stores.	Quartermaster stores.	Ordnance stores.	Medical stores.	Miscellaneous.	Total No. of pounds.
NOT OWNED OR RUN BY GOVERNMENT.								*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	
Railroads	1,421	31,514	32,935	3,820	2,238	64	6,122	24,294,244	30,353,509	12,891,991	1,534,309	7,575,686	76,649,739
Steamboats, barges, &c	593	14,632	15,225	448	1,443	130	2,021	23,467,061	13,537,872	6,699,581	2,508,520	2,191,433	48,404,467
Stages	456	924	1,380	.....	.....	.....	.....	50	1,863	735	.....	1,000	3,648
Wagons	99	657	756	.....	.....	.....	.....	12,434,357	14,678,445	1,732,598	479,631	2,679,604	32,004,635
Total	2,569	47,727	50,296	4,268	3,681	194	8,143	60,195,712	58,571,689	21,324,905	4,522,460	12,447,723	157,062,489
OWNED OR RUN BY THE GOVERNMENT.													
Steamboats, barges, &c	4,092	18,472	22,564	3	.....	2	5	2,158,288	2,189,537	616,006	400,048	1,698,855	7,062,734
Total	4,092	18,472	22,564	3	.....	2	5	2,158,288	2,189,537	616,006	400,048	1,698,855	7,062,734
Grand total	6,661	66,199	72,860	4,271	3,681	196	8,148	62,354,000	60,761,226	21,940,911	4,922,508	14,146,578	164,125,223

Respectfully submitted.

M. I. LUDINGTON, *Quartermaster, U. S. A.*

QUARTERMASTER-GENERAL'S OFFICE, *September*, 1873.

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C.—*Abstract of contracts for wagon transportation entered into by the Quartermaster's Department received at the Office of the Quartermaster-General during the fiscal year ending June 30, 1873.*

Names of officers.	Names of contractors.	Date of contract.	Route of supply.	Rates.	Date of expiration of contract.
Lieut. Col. James A. Ekin, chief quartermaster Department of Texas, San Antonio.	Kenedy & King	May 1, 1871	From Ringgold Barracks to Fort McIntosh, Tex	$1.18 per 100 lbs. per 100 miles	June 30, 1872
Lieut. Col. S. B. Holabird, chief quartermaster Department of Texas, San Antonio.	H. B. Adams	July 1, 1872	Route No. 5. From San Antonio to the following posts, viz: Forts Clark, Concho, Davis, Duncan, Stockton, Bliss, Griffin, McIntosh, McKavett, Richardson, and Quitman.	$1.06 per 100 lbs. per 100 miles	June 30, 1873
Do	do	July 1, 1872	Route No. 7. From Corsicana, or the terminus of the Texas Central Railroad, to Forts Griffin and Richardson.	$1.86 per 100 lbs. per 100 miles	June 30, 1873
Do	Kenedy & King	July 1, 1872	Route No. 3. From Ringgold Barracks to Fort McIntosh.	$1.30 per 100 lbs. per 100 miles	June 30, 1873
Do	H. B. Adams	July 1, 1872	Route No. 4, part 2. From Victoria, Tex., or other points on the Gulf, Western Texas, and Pacific Railroad, to the public warehouses at San Antonio.	$1.08 per 100 lbs. per 100 miles	June 30, 1873
Maj. Rufus Saxton, chief quartermaster Department of the Columbia, Portland, Oreg.	Alexander Martin	June 1, 1872	From the terminus of the Oregon and California Central Railroad (Oregon branch) to Fort Klamath, Oreg.	5½ cents per lb. in July, August, September, and October, 1872, and April, May, and June, 1873, and 30 cents per lb. from November to March, 1873, inclusive, for the whole distance.	June 30, 1873
Do	William Grant	June 13, 1872	From Dalles, Oreg., to Camp Harney, Oreg	7 cents per lb. for the whole distance.	June 30, 1873
Do	do	June 8, 1872	From Dalles to Camp Warner, Oreg	8½ cents per lb. for the whole distance.	June 30, 1873
Do	Park Winans	July 5, 1872	From Wallula to Fort Colville, Wash. Ter	July, August, September, and October, 1872, and April, May, and June, 1873, $4.63 per 100 lbs.; and from November, 1872, to March, 1873, inclusive, $9.26 per 100 lbs. for the whole distance.	June 30, 1873
Do	Charles Russell	July 1, 1872	From Wallula or Umatilla, Wash. Ter., to Fort Boise, Idaho Ter.	6 cents per lb. for the whole distance.	June 30, 1873
Lieut. Col. Rufus Saxton, chief quartermaster Department of the Columbia.	J. W. Manning	Sept. 13, 1872	Transporting the United States military mails from Linkville to Fort Klamath, Oreg.	$50 per month	June 30, 1873
Capt. H. W. Jones, assistant quartermaster, Portland, Oreg.	A. J. Brown	June 1, 1872	Transporting the United States military mails between Bidwell and Camp Warner.	$159 per month	June 30, 1873
Lieut. Col. H. C. Ransom, chief quartermaster Department of	Patrick Hill	Mar. 11, 1873	Transporting the United States military mails and express between Fort Abraham Lincoln	$400 per month	Mar. 11, 1874

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Dakota, Saint Paul, Minn.	E. G. Maclay	Mar. 15, 1873	and Fort Buford in Fort Stevenson, Dak. Ter.	$1.09 per 100 lbs. per 100 miles.	Mar. 31, 1874
Do	E. C. Winnie	Mar. 12, 1873	Montana route. Between all posts now or which may be established in Montana during the existence of the contract.	$1.22 per 100 lbs. per 100 miles	Mar. 31, 1874
			Route No. 4. From Saint Paul or Saint Cloud, Minn., or Fort Stevenson or other posts on the Missouri River, Dak. Ter., or any point on the Saint Paul and Pacific Railroad or on the Northern Pacific Railroad, to any posts now or which may be established during the existence of the contract in the State of Minnesota, or in that portion of Dakota Territory lying north and east of Missouri River.		
Maj. B. C. Card, chief quartermaster Department of Dakota, Saint Paul, Minn.	A. H. Wilder and N. P. Clarke.	May 27, 1873	To accompany the military escort to the joint commission to survey the boundary-line along the forty-ninth parallel, (thirty two-horse or two-mule wagons with teams, &c., complete.)	$5 per day per team, forage for the animals, and subsistence for the men.	Date of the return of the expedition.
Maj. Alexander J. Perry, chief quartermaster Department of the Platte, Omaha, Nebr.	M. V. Boughton	July 15, 1872	From Bryan, Wyo. Ter., to Camp Stambaugh and Camp Brown, Wyo. Ter.	$2.26⅔ per 100 lbs. per 100 miles, (average.)	June 30, 1873
Do	C. E. Clay and Daniel McUlvan.	July 24, 1872	From Cheyenne Depot, Wyo. Ter., to Forts Laramie and Fetterman, Wyo. Ter.	$1.22½ per 100 lbs. per 100 miles, (average.)	June 30, 1873
Do	John Hunton	Aug. 10, 1872	Medicine Bow, Wyo. Ter., to Fort Fetterman, Wyo. Ter.	$1.74 per 100 lbs. per 100 miles, (average.)	June 30, 1873
Do	Joseph Gordon and Henry B. Murray.	Aug. 30, 1872	From the terminus of the Utah Southern Railroad to Beaver, Wyo. Ter.	$1.44 per 100 lbs. per 100 miles	June 30, 1873
Maj. James J. Dana, chief quartermaster Department of Arizona, Prescott, Ariz. Ter.	Jonathan M. Bryan and Abraham Frank.	June 1, 1872	Route No. 2. From Ehrenbergh to Camps Date Creek, Hualpai, McDowell, Verde, and Fort Whipple, Ariz. Ter.	Per 100 lbs. per 100 miles: To Date Creek and Hualpai, $2.50; to McDowell, $1.90; to Verde, $2.70; to Fort Whipple, $2.35, currency.	June 30, 1873
Do	J. M. Barney	Sept. 16, 1872	Route No. 1. From Yuma Depot to Tucson and Camps Bowie, McDowell, and Grant, Ariz. Ter.	Per 100 lbs. per 100 miles: To Tucson, $2.30; to Camp Bowie, $2.37½; to McDowell, $2.43; to Grant, $2.60.	June 30, 1873
Do	E. N. Fish and W. B. Hellings.	April 1, 1873	Route No. 1. From Yuma Depot to Camps Apache, Bowie, McDowell, and Lowell, and to Tucson Depot and New Camp Grant; and to and from any posts south of latitude 34° north and east of the Colorado River.	Per 100 lbs. per 100 miles: To Apache, $3.25; to Bowie, $2.29; to McDowell, $2.37; to Lowell, Tucson Depot, and New Camp Grant, $2.25.	June 30, 1874
Do	Daniel Hazard	April 1, 1873	Route No. 2. All posts in Department of Arizona north of 34° north and east of the Colorado River, including Camp McDowell, supplied from Ehrenbergh.	Per 100 lbs. per 100 miles: To Camp McDowell, $2.30; to Date Creek, $2.35; to Hualpai, $2.25; to Verde and Fort Whipple, $2.49; between posts, $2.50.	June 30, 1874
Capt. W. B. Hughes, chief quartermaster Department of the Gulf, New Orleans, La.	Edward Schlesinger	May 24, 1873	Wagon transportation in New Orleans and vicinity.	Various	June 30, 1874
Col. L. C. Easton, assistant quartermaster-general, U. S. A., Philadelphia, Pa.	W. S. Crawford	Oct. 1, 1872	Wagon hauling in Philadelphia, and at Schuylkill arsenal, Pennsylvania.	do	June 30, 1873

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C.—*Abstract of contracts for wagon transportation, &c.*—Continued.

Names of officers.	Names of contractors.	Date of contract.	Route of supply.	Rates.	Date of expiration of contract.
Col. Stewart Van Vliet, chief quartermaster Department of the Missouri, Fort Leavenworth, Kans.	H. C. Lovell	May 10, 1873	Route No. 2. From any and all points on the Kansas Pacific Railway, Atchison, Topeka and Santa Fé Railroad, and Denver and Rio Grande Railroad, to any post or place in the State of Kansas and Territories of Colorado and New Mexico, and to Camp Apache, Ariz. Ter., and to such portions of the Indian Territory as lie north of the Red River and west of longitude 97°.	Per 100 lbs. per 100 miles: From Atchison, Topeka and Santa Fé Railroad, 90¼ cents; from the Kansas Pacific Railway and Denver and Rio Grande Railroad, 99 11-12 cents, (average.)	Mar. 31, 1874
Lieut. Col. A. R. Eddy, chief quartermaster Department of California, San Francisco, Cal.	Irving Ayres	June 2, 1873	From Reno, Nev., to Camp Bidwell, Cal	$6.43¾ per 100 lbs for the whole distance, (average.)	Jun 30, 1874
Do	J. S. Rothschild	June 2, 1873	From San Francisco to Camp Independence, Cal.	$6.61½ per 100 lbs. for the whole distance, (average.)	June 30, 1874
Do	Sigmund Greenbaum	June 1, 1873	From San Francisco to Camp Gaston, Cal	$2.63½ per 100 lbs. for the whole distance, (average.)	June 30, 1874
Do	Benjamin F. White and James C. Stump.	June 2, 1873	From Corinne, Utah Ter., to Fort Hall, Idaho Ter.	$4.50 per 100 lbs. for the whole distance, (average.)	June 30, 1874
Do	James M. Ellis	May 22, 1873	From San Francisco, Cal., to Camp Wright, Cal.	$5.82½ per 100 lbs. for the whole distance, (average.)	June 30, 1874

Respectfully submitted,

M. I. LUDINGTON, *Quartermaster, U. S. A.*

QUARTERMASTER-GENERAL'S OFFICE, *September*, 1873.

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D. Abstract of contracts for water transportation entered into by the Quartermaster's Department during the fiscal year ending June 30, 1873.

Name of officer.	Name of contractor.	Date of contract.	Route of supply.	Rates.	Date of expiration of contract.
Col. D. H. Rucker, A. Q. M. Gen	John B. Dallas	Feb. 21, 1873	Sioux City, Iowa, to Fort Benton, and intermediate points on the Missouri River.	Schedule rates	Oct. 31, 1873
Do	G. W. Cass, president North Pacific Railroad Company.	Mar. 1, 1873	Edwinton to points up and down the Missouri River between Sioux City and Fort Benton; also from Chicago, Ill., to Duluth, Minn.	do	Oct. 31, 1873
Lieut. Col. S. B. Holabird, D. Q. M. Gen.	C. A. Whitney & Co., agents of Chas. Morgan.	July 1, 1872	New Orleans, La., to Galveston, Indianola, and Brazos Santiago, Tex., and return.	do	June 30, 1873
Do	Kenedy & King	July 1, 1872	Brazos Santiago to Brownsville and Ringgold Barracks, Tex., and return.	do	June 30, 1873
Maj. William Myers, Q. M	F. Hollingshead	July 1, 1872	Washington, D. C., to Forts Foote and Washington, Md.	do	June 30, 1873
Maj. J. J. Dana, Q. M	C. Joeger	July 1, 1872	Ferriage across Colorado River at Yuma Depot	$250 per month	June 30, 1873
Capt. H. W. Janes, A. Q. M	George Flavel	July 1, 1872	Astoria, Oreg., to Forts Cape Disappointment and Stevens.	Schedule rates	June 30, 1873
Do	Thomas Coape	July 1, 1872	Fort Townsend to Camp San Juan	do	June 30, 1873
Maj. C. G. Sawtelle, Q. M	B. M. Hartshorne	June 1, 1872	San Francisco, Cal., to Point Isabel, mouth of the Colorado River.	$14 per ton	June 30, 1873

Respectfully submitted.

M. I. LUDINGTON, *Quartermaster, U. S. A.*

QUARTERMASTER-GENERAL'S OFFICE, *September*, 1873.

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E.—*Statement of vessels chartered, impressed, or employed by the Quartermaster's Department, during the fiscal year ending June 30, 1873.*

Name.	Class.	Tonnage.	When chartered.	Period of service. From—	Period of service. To—	Where charter-money is payable.	By whom put in service.	Rate of pay.	Am't paid.	Am't unpaid.	Total earnings.	Expenses for coal, &c.
Henry Smith	Steamer	108	June 1, 1869	July 1, 1872	June 30, 1873	New York City	Col. R. Ingalls, A. Q. M. Gen.	$45 per day	$16, 425 00	.....	$16, 425 00	.....
Magnolia	Steamship	1, 215	Nov. 4, 1872	Nov. 4, 1872	Dec. 7, 1872	do	do	$550 per day	15, 950 00	.....	15, 950 00	.....
Astoria	Steamer	Unknown	June 1, 1872	July 1, 1872	June 30, 1873	Portland, Oreg	Capt. H. W. Jones, A. Q. M.	* $440 per mo.	5, 354 28	.....	5, 354 28	.....
Favorite	do	do	June 1, 1872	July 1, 1872	June 30, 1873	do	do	†$300 per mo.	3, 600 00	.....	3, 600 00	.....
Pilot	do	145	Jan. 24, 1873	Jan. 24, 1873	Feb. 11, 1873	San Francisco, Cal.	Capt. G. C. Smith, A. Q. M.	$16.66⅔ p'r day	316 67	.....	316 67	‡$811 12
Kate	Schooner	Unknown	.....	.....	.....	Fort Johnston, N.C	Lt. E. S. Curtis, A. A. Q. M.	§12½ cents per 100 pounds.	67 73	.....	67 73	.....
Annie Bell	.....	do	.....	.....	.....	do	do	§...do	52 49	$6 69	59 18	.....
Zenith	.....	do	.....	.....	.....	do	do	§...do	44 45	.....	44 45	.....
Brandt	Tug-boat	do	.....	.....	.....	do	do	§...do	64 23	.....	64 23	.....
Alpha	do	do	.....	.....	.....	do	do	§...do	14 10	.....	14 10	.....
Republic	do	do	Dec. 9, 1872	Dec. 9, 1872	Dec. 9, 1872	Charleston, S. C	Capt. G. W. Bradley, A. Q. M.	$10 job	10 00	.....	10 00	.....
Ajax	Steamer	do	Nov. , 1872	Nov , 1872	Nov. , 1872	Savannah, Ga	Lt. J. W. Dillenback, A. A. Q. M.	$340 job	340 00	.....	340 00	.....
											42, 245 64	811 12

* $30 extra trips; $6 an hour overtime. † $3 per ton for stores. ‡ Coin. § Employed as occasion demands, transporting stores from Wilmington to Fort Johnston.

Respectfully submitted.

M. I. LUDINGTON, *Quartermaster, U. S. A.*

QUARTERMASTER-GENERAL'S OFFICE, *September*, 1873.

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F.—*Statement of vessels owned or purchased by the Government and employed in the Quartermaster's Department during fiscal year ending June 30, 1873.*

Name.	Class.	Tonnage.	When purchased or built, &c.	Estimated value or cost.	By whom employed.	Where employed.	Amount paid for repairs, &c.	Remarks.
Gen. A. A. Humphreys.	Steam-tug ..	45	1867.....	$11,500	Lieut. Col. A. Montgomery, D. Q. M. Gen.	Boston, Mass	$7,361 88	This vessel is owned by the Engineer Department of the Army, and run in connection with that Department.
General McPherson....	Propeller ...	104.23	Sept. 1, 1867	40,000	Lieut. Col. A. R. Eddy, D. Q. M. Gen.	San Francisco, Cal..	24,116 03	Coin.
Margaret	Schooner....	22	Feb. 9, 1864	2,700	Maj. R. N. Batchelder, Q. M..	Portland, Oreg	910 16	Coin.
Pulaski	St'm-launch.	.....	Feb. 26, 1872	7,000	.....	Fort Pulaski, Ga....	.....	
Matchless.....	Schooner....	170	June 5, 1863	13,500	.....	Fort Jefferson, Fla..	504 62	
Total	.....	.....	.....	.....	.....	.....	37,413 19	

Respectfully submitted.

M. I. LUDINGTON, *Quartermaster, U. S. A.*

QUARTERMASTER-GENERAL'S OFFICE, *September*, 1873.

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VI.—*Report of Capt. A J. McGonningle, assistant quartermaster, U. S. A.*

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE,
Washington, D. C., September 22, 1873.

GENERAL: I have the honor to submit the following report of the operations of the cemeterial branch of this office during the fiscal year ending June 30, 1873.

The number of interments in the national cemeteries reported last year, 317,962; the number of bodies of Union soldiers since interred in the cemeteries, 148; number removed by friends, none; remaining in the cemeteries, 318,110; the number of known, 170,287; unknown, 147,823.

On the 5th of December, 1872, the Secretary of War directed the establishment of a national cemetery at Fort McPherson, Nebr., and the removal thereto of the remains interred at Forts Sedgwick and Kearney.

By act of Congress approved March 3, 1873, the American burial-ground near the city of Mexico was designated a national military cemetery.

The appropriation for national cemeteries for the year ending June 30, 1873, was $250,000, of which amount the sum of $527.03 remained undrawn in the Treasury at the end of the fiscal year.

The following work has been done during the year: Brick walls have been erected or are now being erected around the following cemeteries viz: New Berne and Raleigh, N. C., Beaufort and Florence, S. C., and Memphis, Tenn.; stone walls around the following cemeteries, viz: Danville, Glendale, Seven Pines, and Staunton, Va., Salisbury, N. C., and Forts Leavenworth and Scott, Kans.

Superintendents' lodges have been or are now being erected at the national cemeteries at Danville, Glendale, and Seven Pines, Va., Raleigh and Wilmington, N. C., Camp Nelson, Logan's Cross-Roads, and Lebanon, Ky., Memphis, Chattanooga, Fort Donelson, and Knoxville, Tenn., and Fort Smith, Ark.

At the following national cemeteries permanent inclosures are required, viz: Andersonville, Ga., Fort Gibson, Ind. T., Grafton, W. Va., and Fort McPherson, Nebr.

At the following national cemeteries permanent lodges are required, viz: Grafton, W. Va., Beverly, N. J., and Fort McPherson, Nebr.

During the past fiscal year the grounds at all the cemeteries have been kept in good order, and permanent improvements, such as drainage, wells, cisterns, and green-houses added, as the means at command would allow.

A handsome arched gateway, similar to the one erected at the Arlington, Va., national cemetery, has been built at the Nashville, Tenn., national cemetery.

The Antietam national cemetery has not yet been transferred by the cemetery association to the United States.

Four civil engineers are employed by this Department, with stations at Washington, D. C., Raleigh, N. C., Nashville and Memphis, Tenn., whose duty it is to inspect and report upon all permanent work going on at the cemeteries, mark the lines for the walls, and determine the sites for the lodges.

By an act of Congress approved March 3, 1873, $1,000,000 were appropriated for the erection of a head-stone at each grave in the nat-

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military cemeteries, to be made of durable stone and of such design and weight as shall keep them in place when set. The act further provides "that the contract shall be awarded by the Secretary of War after sixty days' advertisement in ten newspapers of general circulation, and the Secretary of War shall first determine for the various cemeteries the size and model for such head-stones, and the standard of quality and color of the stones to be used."

A copy of the advertisement inviting proposals accompanies this report, together with a copy of the published specifications in detail, the standard fixed by the Secretary of War.

The list which accompanies the latter is intended to exhibit only the number of graves at each cemetery which require head-stones, and does not include those for which head-stones or monuments have already been provided, nor the number of unknown remains in the Salisbury cemetery over which one monument is to be erected. Hence the discrepancy between the totals stated in that list and the total number of interments as given in this report.

By an act approved March 3, 1873, the sum of $10,000 was appropriated for a monument at the Salisbury, N. C., national cemetery, wherein lie the remains of 12,112 men, most of them not identified. Several artists have been invited to submit designs for such a monument. Three designs have been received thus far.

Superintendents are required at sixty-six national cemeteries. Seven were appointed during the year, one died, and one was discharged; sixty-five remained on duty at the close of the fiscal year.

Very respectfully, your obedient servant,

A. J. McGONNIGLE,
Captain and Assistant Quartermaster, U. S. A.

Brig. Gen. M. C. MEIGS,
Quartermaster-General, U. S. A.

Proposals for head-stones for national military cemeteries.

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE.
Washington, D. C., June 27, 1873.

Proposals are invited for furnishing head-stones for the national military cemeteries as prescribed by the law of 3d March, 1873, of which the following is an extract:

"*Provided*, that the head-stones required by an act entitled 'An Act to establish and protect national cemeteries,' approved February 22, 1867, and the act amendatory thereof, approved June 8, 1872, shall be of durable stone, and of such design and weight as shall keep them in place when set; and the contract for supplying the same shall be awarded by the Secretary of War, after sixty days' advertisement in ten newspapers of general circulation, to some responsible person or persons whose samples and bids shall in the greatest measure combine the elements of durability, decency, and cheapness; and the sum of one million dollars is hereby appropriated for said purpose out of any money in the Treasury not otherwise appropriated; and the Secretary of War shall first determine for the various cemeteries the size and model for such head-stones, and the standards of quality and color of the stone to be used, and bids shall be made and decided with reference thereto; and contracts may be made for separate quantities of such head-stones; and the contracts made under this act shall provide for furnishing and setting all the said head-stones, and shall not in the aggregate exceed the sum hereby appropriated."

The total number to be furnished is estimated at *253,088 for the known, 147,694; for the unknown, 105,394.

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* These figures could only be estimated when the advertisement was prepared, as full reports from some officers in charge of cemeteries had not then been received; hence the discrepancy existing between the above figures and the total number in list accompanying the specifications, the latter having been corrected from reports received after the advertisement had been prepared.

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Specifications, describing in detail the standard fixed by the Secretary of War, can be had on application by letter to this Office, where also a specimen will be placed on exhibition within a few days.

Proposals should be in sealed envelopes, marked: "Proposals for head-stones for national military cemeteries," and addressed to the Quartermaster-General of the Army, in whose Office they will be opened, in presence of bidders, on Saturday, September 6, 1873, commencing at 11 o'clock a. m.

By order of the Secretary of War.

M. C. MEIGS,
Quartermaster-General, Bvt. Maj. Gen., U. S. A.

Official copy.

A. J. McGONNIGLE,
Capt. and Assistant Quartermaster, U. S. A.

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE,
Washington, D. C., August 15, 1873.

Mr. ——— ———,

SIR: In addition to the information contained in the specifications for head-stones for soldiers' graves, you are advised that abbreviations may be made in the Christian or first name of the deceased, also in his rank, and in the name of his State, thus:

WM. C. JONES, PVT., MASS.

SAM. H. WALKER, LT. COL., PA.

Where the name of the deceased is long, it must be put on the stone in a curve, with the rank and name of the State below.

By order of the Secretary of War.

M. C. MEIGS,
Quartermaster-General.

Specifications for head-stones for national military cemeteries.

FOR THE KNOWN.

A white marble or gray granite slab, four (4) inches thick, ten (10) inches wide twelve (12) inches high above ground, and, for the latitude of Washington, and south twenty-four (24) inches in the ground; north of that latitude, thirty (30) inches in the ground.

The part above ground to be polished neatly, and to have the top slightly curved.

The number of the grave, the rank and name of the soldier, and the name of the State from which he came, to be cut on one face; the figures and capital letters to be inches long and ½ inch deep; the other letters one inch long and ½ inch deep. The letters may be in relief or incised, at the option of the bidder.

The portion below ground to be rough-dressed, and at least ½ inch wider and thicker than the part above ground. The bottom to be straight and of uniform thickness, and corners square.

FOR THE UNKNOWN.

A granite or marble block six inches square and two and one-half feet long, (6″ × 6″ × 2′ 6″.)

The top and four inches of the sides of the upper end to be neatly dressed, and the number of the grave cut on the top in figures 2½ inches long and ½ inch deep, or relieved. When the figures are more than three, they will be arranged in a curve around the margin.

The top to be flat or slightly convex; the bottom to be flat and full six inches square; the rest of the block to be rough-dressed or split, but to be of full size throughout.

The block to be firmly set in the ground so that the top shall be just even with top of the grave.

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The marble for the *slabs* to be white, of fine grain, good texture, and hard; for the *blocks*, to be nearly white, of pretty fine grain, and good texture—to be a good durable marble.

The granite for the *slabs* to be of uniform gray, of a fine grain, uniform mixture of the ingredients, and free from all oxides; for the *blocks*, to be gray, of pretty close grain, and to be a good granite for building purposes.

Specimen head-stones, giving the form, the style of finish, and the quality of the stone required, will be exhibited in the Quartermaster-General's Office in a few days.

NOTES.

1. These slabs may be of uniform width and thickness throughout, (viz: 10 inches wide and 4 inches thick,) at the option of the bidder.
2. The granite slabs may be fine-pin hammered on the back, and the face rubbed or sanded smooth.
3. The term *polished* is used to signify the usual manner of finishing marble head-stones.

List of national cemeteries requiring head-stones.

Running number.	Name of cemetery.	Location.	Number of interments of known remains.	Number of interments of unknown remains.	Total number of interments.
1	Alexandria Cemetery	One mile from Alexandria, La	517	763	1,280
2	Alexandria Cemetery	At Alexandria, Va	3,337	103	3,440
3	Andersonville Cemetery	At Andersonville, Ga	12,769	483	13,252
4	Annapolis Cemetery	One-fourth mile from Annapolis, Md	2,263	211	2,474
5	Arlington Cemetery	Three miles from Washington, D. C	7,247	1,798	9,045
6	Ball's Bluff Cemetery	On the Potomac River, opposite Edwards' Ferry.	1	24	25
7	Barrancas Cemetery	Near Fort Barrancas, Pensacola, Fla	580	375	955
8	Battle Ground Cemetery	Four miles from Washington, D. C	40	.....	40
9	Baton Rouge Cemetery	At Baton Rouge, La	2,428	494	2,922
10	Beaufort Cemetery	Three-fourths of a mile from Beaufort, S. C	4,319	3,900	8,219
11	Beverly Cemetery	One and one-half miles from Beverly, N. J	138	7	145
12	Brownsville Cemetery	Near Fort Brown, Tex	1,288	1,409	2,697
13	Camp Butler Cemetery	Six miles from Springfield, Ill., on the Toledo, Western and Wabash Railroad.	533	164	697
14	Camp Nelson Cemetery	Six miles from Nicholasville, Ky	2,337	1,189	3,526
15	Cave Hill Cemetery	At Louisville, Ky	3,226	548	3,774
16	Chalmette Cemetery	Six miles from New Orleans, La	6,658	5,280	11,938
17	Chattanooga Cemetery	One and one-fourth miles from Chattanooga, Tenn.	7,919	4,929	12,848
18	City Point Cemetery	One and one-half miles from City Point, Va	3,490	338	3,828
19	Cold Harbor Cemetery	Eleven and one-half miles from Richmond, Va	630	1,311	1,941
20	Corinth Cemetery	Three-fourths of a mile from Corinth, Miss	1,784	3,886	5,670
21	Crown Hill Cemetery	Three miles from Indianapolis, Ind	672	36	708
22	Culpeper Cemetery	At Culpeper Court-House, Va	446	902	1,348
23	Cypress Hill Cemetery	On Long Island, eight miles from New York City.	3,038	75	3,113
24	Danville Cemetery	At Danville, Va	1,159	134	1,293
25	Fayetteville Cemetery	One-half mile from Fayetteville, Ark	456	754	1,210
26	Florence Cemetery	One mile from Florence, S. C	159	2,799	2,958
27	Fort Donelson Cemetery	One-half mile from Dover, Tenn	128	511	639
28	Fort Gibson Cemetery	At Fort Gibson, Ind. T	156	1,967	2,123
29	Fort Harrison Cemetery	Eight miles from Richmond, Va	240	286	526
30	Fort Leavenworth Cemetery.	One-half mile from Fort Leavenworth, Kans.	364	744	1,108
31	Fort Scott Cemetery	One and one-half miles from Fort Scott, Kans.	307	102	409
32	Fort Smith Cemetery	One-fourth of a mile from Fort Smith, Ark	565	939	1,504
33	Fredericksburgh Cemetery	At Fredericksburgh, Va., one mile from the railway station.	2,448	4,155	6,603
34	Gettysburgh Cemetery	At the village of Gettysburgh, Pa	.....	979	979
35	Glendale Cemetery	Fifteen miles from Richmond, Va	237	399	636
36	Grafton Cemetery	One-fourth of a mile from Grafton, W. Va	618	608	1,226
37	Hampton Cemetery	One-half mile from Hampton, Va	4,364	450	4,814
38	Jefferson Barracks Cemetery.	On the military reserve of Jefferson Barracks, ten miles from Saint Louis, Mo.	6,756	1,754	8,510
39	Jefferson City Cemetery	At Jefferson City, Mo	310	330	640
40	Keokuk Cemetery	At Keokuk, Iowa	569	21	590
41	Knoxville Cemetery	Three-fourths of a mile from Knoxville, Tenn	2,016	1,045	3,061

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List of national cemeteries requiring head-stones—Continued.

Running number.	Name of cemetery.	Location.	Number of interments of known remains.	Number of interments of unknown remains.	Total number of interments.
42	Laurel Cemetery	Near Baltimore, Md	236	2	238
43	Lebanon Cemetery	Two and one-half miles from Lebanon, Ky	564	283	847
44	Lexington Cemetery	One mile from Lexington, Ky	815	105	920
45	Little Rock Cemetery	One and one-half miles from Little Rock, Ark.	2, 765	37	2, 802
46	Logan's Cross-roads Cemetery.	At Mill Springs, Lincolnville, Ky	327	367	694
47	Loudon Park Cemetery	Three miles from Baltimore, Md	1, 475	161	1, 636
48	Marietta Cemetery	At Marietta, Ga	6, 999	3, 053	10, 052
49	Memphis Cemetery	Six miles from Memphis, Tenn	5, 027	8, 811	13, 838
50	Mobile Cemetery	At Mobile, Ala	248	562	810
51	Mound City Cemetery	One and one-half miles from Mound City, Ill	2, 450	2, 640	5, 090
52	Nashville Cemetery	Six miles from Nashville, Tenn	11, 477	3, 966	15, 443
53	Natchez Cemetery	One and one-half miles from Natchez, Miss	287	2, 775	3, 062
54	New Albany Cemetery	At New Albany, Ind	2, 090	666	2, 756
55	New Berne Cemetery	One mile from New Berne, N. C	2, 031	286	2, 317
56	Philadelphia cemeteries	At Philadelphia, Pa	1, 789	30	1, 819
57	Pittsburgh Landing Cemetery.	Three and one-fourth miles from Shiloh, Tenn.	1, 227	2, 354	3, 581
58	Poplar Grove Cemetery	Five miles from Petersburgh, Va	2, 171	3, 354	5, 525
59	Port Hudson Cemetery	One and one-half miles from Port Hudson, La	540	3, 260	3, 800
60	Raleigh Cemetery	One mile from Raleigh, N. C	606	553	1, 159
61	Richmond Cemetery	Three and one-half miles from Richmond, Va.	832	4, 003	4, 835
62	Rock Island Cemetery	On Rock Island, Mississippi River, Ill	280	9	289
63	Salisbury Cemetery	One-half mile from Salisbury, N. C	88	.....	88
64	Seven Pines Cemetery	Nine miles from Richmond, Va	140	649	789
65	Soldiers' Home Cemetery	Two miles from Washington, D. C	4, 959	279	5, 238
66	Springfield Cemetery	Three miles from old Springfield, Mo.; six miles from railroad station.	812	706	1, 518
67	Staunton Cemetery	One and one-fourth mile from Staunton, Va.	231	406	637
68	Stone River Cemetery	Three miles from Murfreesborough, Tenn	3, 742	2, 321	6, 063
69	Vicksburgh Cemetery	Two miles from Vicksburgh, Miss	3, 829	12, 687	16, 516
70	White Hall Cemetery	Near Bristol, seventeen miles from Philadelphia, Pa.	59	1	60
71	Wilmington Cemetery	One mile from Wilmington, N. C	701	1, 359	2, 060
72	Winchester Cemetery	One-fourth of a mile from Winchester, Va	2, 009	2, 026	4, 035
73	Yorktown Cemetery	One-half mile from Yorktown, Va	722	844	1, 566
	Total	....	148, 040	104, 757	252, 797

M. C. MEIGS
Quartermaster-General Bvt. Maj. Gen., U. S. A.

QUARTERMASTER-GENERAL'S OFFICE,
Washington, June 27, 1873.

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REPORT OF COMMISSARY-GENERAL OF SUBSISTENCE.

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REPORT

OF THE

COMMISSARY-GENERAL OF SUBSISTENCE.

OFFICE COMMISSARY-GENERAL OF SUBSISTENCE,
Washington City, October 10, 1873.

SIR: I have the honor to submit the following report of the operations of the Subsistence Department of the Army for the fiscal year terminating June 30, 1873:

During the year subsistence supplies for the Army have been procured, distributed, stored, and sold or issued to officers, enlisted men, civilian army employés, and others whose connection with the Army entitles them to such supplies, by the methods required by law and Army Regulations, and under appropriate requisitions and orders of a general or special nature, no changes having taken place during the year in the sources of such supplies, except such as necessarily follow their increasing production and decreasing cost at points nearer the troops to be supplied.

Responsible officers of the Subsistence Department stationed at the headquarters of the several geographical divisions and departments as chief commissaries, acting constantly under the knowledge and approval of their respective commanding generals, are charged, under conformity with the laws and regulations and the orders or decisions of the Secretary of War or Commissary-General, with the procurement, distribution, care, and issue of the necessary supplies.

During the fiscal year ending June 30, 1873, there were reported to this Office 205 advertisements inviting proposals for supplies, 305 contracts for fresh meat, 62 contracts for complete rations, 127 contracts for miscellaneous articles, and 298 contracts, consisting of written proposals and acceptances.

The average price of fresh beef per contracts made during the year was as follows, in the several States and Territories:

States or Territories.	Cents per pound.	States or Territories.	Cents per pound.	States or Territories.	Cents per pound.
Maine	13. 62	Alabama	9. 12	Dakota Territory	9. 09
Massachusetts	14. 00	Mississippi	10. 50	Wyoming Territory	8. 88
Rhode Island	11. 75	Louisiana	9. 00	New Mexico Territory	8. 53
Connecticut	10. 00	Texas	5. 04	Colorado Territory	7. 18
New York	11. 69	Tennessee	8. 68	Utah Territory	7. 87
Pennsylvania	10. 54	Kentucky	8. 68	Montana Territory	9. 15
Maryland	10. 81	Illinois	7. 95	California	11. 70
District of Columbia	12. 20	Michigan	10. 85	Oregon	7. 36
Virginia	11. 93	Missouri	5. 50	Arizona Territory	13. 87
North Carolina	11. 16	Minnesota	8. 85	Washington Territory	9. 18
South Carolina	10. 72	Nebraska	7. 35	Idaho Territory	11. 82
Georgia	8. 37	Kansas	8. 68	Nevada	15. 67
Florida	8. 66	Indian Territory	7. 12		

Making the average contract price for the year 9.81 cents per pound net, being 5½ mills less than for the previous year.

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The average cost of the complete ration for the fiscal year ending June 30, 1873, at ten of the principal points of purchase was as follows:

Months.	New York, N. Y.	Baltimore, Md.	Louisville, Ky.	Saint Louis, Mo.	Saint Paul, Minn.	Omaha, Nebr.	Fort Leavenworth, Kans.	Chicago, Ill.	New Orleans, La.	San Francisco, Cal.
1872.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.
July	15.97	21.57	14.58	15.69	16.31	16.13	16.57	15.99	17.15	22.65
August	15.97	19.16	14.17	16.22	16.29	16.81	16.61	16.07	17.97	22.28
September	16.29	19.15	14.46	16.11	16.28	17.92	18.16	15.75	19.45	23.34
October	16.73	18.94	14.71	16.87	16.41	19.03	18.93	15.09	20.00	21.31
November	17.01	18.92	15.10	15.90	15.97	18.41	18.83	13.29	19.48	21.30
December	16.49	18.25	14.62	16.62	16.58	18.13	18.04	14.38	17.82	21.49
1873.										
January	15.50	18.17	14.55	15.26	16.72	17.14	17.55	14.70	18.32	21.50
February	16.75	20.58	15.36	16.26	16.12	18.65	16.00	14.21	20.52	21.89
March	18.31	20.58	16.02	16.31	15.84	18.63	18.52	16.17	17.70	22.92
April	16.60	20.33	15.68	15.46	16.57	18.76	18.01	15.41	17.53	22.08
May	17.45	20.49	15.50	16.66	17.14	18.25	17.64	14.59	18.10	22.27
June	17.20	19.98	15.46	16.61	16.61	16.06	16.88	13.95	18.58	22.16
Average	16.69	19.67	15.02	16.16	16.40	17.82	17.64	14.96	18.55	21.96

Making the general average for the year seventeen cents and forty-eight hundredths per ration, showing an increase of thirty-four hundredths of a cent over the average of the previous year.

Under the requirements of section 6, act of March 3, 1865, the Subsistence Department has during the year furnished tobacco for sale to the enlisted men of the Army at cost price, to the amount of $152,489.40, the average monthly sale being $12,707.45.

It is respectfully requested that tobacco be furnished to the enlisted men of the Army by issue as a component part of the regular ration, instead of by sale, and that the ration of tobacco be, as near as may be, the same amount as is at present authorized to be sold to them, viz. 16 ounces per month.

Under the provisions of section 16 of the act of June 30, 1834, and paragraph 1202, Revised Regulations for the Army, 1863, subsistence supplies to the value of $19,925.68 have, in the discretion of commanding officers, been issued gratuitously to Indians of the various tribes visiting military posts, or in their respective nations, no part of which amount is returned to the appropriation for the subsistence of the Army.

During the fiscal year there were received from 415 officers of the Army on duty in the Subsistence Department, who were responsible for subsistence funds or supplies,

3,143 returns of provisions.

1,089 returns of commissary property.

3,231 accounts current.

7,463 total accounts and returns; of which all have been examined and forwarded to the Third Auditor of the Treasury for final settlement with the exception of 876, which await examination in this Office.

Under the act of June 23, 1870, as extended by the act of June 1872, authorizing the proper accounting officers of the Treasury, in the settlement of certain accounts of disbursing officers of the Army and Navy, to allow such credits for over-payments and for losses of funds vouchers, or property, as they may deem just and honorable, when recommended, under authority of the Secretaries of War and Navy, by the heads of the military and naval Bureaus to which such accounts

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spectively pertain, credits have been recommended in the cases of 370 disbursing officers in the sum of $107,236.77, making the total number of officers relieved under the operation of the acts cited 767, in the total amount of $216,557.56.

Up to, and including, the 27th day of September, 1873, 6,096 claims, amounting to $3,312,757.68, had been submitted for examination under the third section of the act of July 4, 1864, for subsistence alleged to have been taken or furnished during the war for Army use in States not in rebellion; 105 of these, accompanied by regular vouchers given by the officers when purchasing the stores, have been recommended for payment, in the aggregate sum of $9,152.75, by the Third Auditor of the Treasury, as purchases under contract, while 1,301 others (aggregating $431,443.31) have been recommended to him for settlement under the act, in the aggregate amount of $308,295.79; and 4,443, amounting to $2,682,644.18, have been examined and disallowed.

Up to the 30th of September, 1873, there have been received and paid 6,525 certificates for commutation of rations to Union soldiers (prisoners of war) and their heirs, as authorized by the joint resolution of July 25, 1866, and section 3 of the act of March 2, 1867, amounting to $287,318.

Under the act of March 3, 1873, to provide for the better care and protection of subsistence supplies, by selecting from the sergeants of the line of the Army, who shall have faithfully served therein five years, as many commissary sergeants as the service requires, not to exceed one for each military post or place of deposit of subsistence supplies, there have been selected and appointed 149 commissary sergeants, who have been assigned to the same number of military posts; a considerable number of whom have been in the performance of their duties a sufficient length of time to show that they have performed them in a highly satisfactory manner, and already to give evidence that the benefit to the service that was anticipated would result from having such a body of experienced and worthy non-commissioned officers will be fully realized. These commissary sergeants have been selected from those sergeants of the line of the Army eligible under the law, who have an honorable record and are recommended by their company and regimental commanders; such recommendations in the majority of cases being accompanied by testimonials of character, capacity, and honorable service in the line as soldiers and non-commissioned officers by officers under whom they have served.

The officers of this department, their rank and assigned stations and duties, are as follows:

Name and rank.	Assigned duties.	Station.
COMMISSARY-GENERAL OF SUBSISTENCE.		
Brigadier-General.		
Amos B. Eaton, brevet major-general, March 13, 1865.	Commissary-General of Subsistence.....	Washington, D. C.
ASSISTANT COMMISSARIES-GENERAL OF SUBSISTENCE.		
Colonels.		
Alexander E. Shiras, brevet major-general, March 13, 1865.	First assistant to the Commissary-General of Subsistence.	Washington, D. C.
Charles L. Kilburn, brevet brigadier-general, March 13, 1865.	Chief commissary subsistence, Division and Department of the South, and purchasing and depot commissary subsistence at Louisville, Ky.	Louisville, Ky.

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Name and rank.	Assigned duties.	Station.
Lieutenant-Colonels.		
Marcus D. L. Simpson, brevet major-general, March 13, 1865.	Chief commissary subsistence, Military Division of the Atlantic.	New York, N. Y.
Henry F. Clarke, brevet major-general, March 13, 1865.	Chief commissary subsistence, Military Division of the Missouri.	Chicago, Ill.
Majors.		
William W. Burns, brevet brigadier-general, March 13, 1865.	Chief commissary subsistence, Military Division of the Pacific.	San Francisco, Cal.
Amos Beckwith, brevet major-general, March 13, 1865.	Chief commissary subsistence, Military Department of the Gulf, and purchasing and depot commissary at New Orleans, La.	New Orleans, La.
John McL. Taylor, brevet colonel, March 13, 1865.	Purchasing and depot commissary at Baltimore, Md.	Baltimore, Md.
Beekman DuBarry, brevet colonel, March 13, 1865.	Chief commissary subsistence, Military Department of Dakota, and purchasing and depot commissary at Saint Paul, Minn.	Saint Paul, Minn.
Robert Macfeely, brevet colonel, March 13, 1865.	Purchasing and depot commissary at Chicago, Ill.	Chicago, Ill.
Thomas J. Haines, brevet brigadier-general, March 13, 1865.	Purchasing and depot commissary at Boston, Mass.	Boston, Mass.
George Bell, brevet brigadier-general, April 9, 1865.	Purchasing and depot commissary at Washington, D. C.	Washington, D. C.
Michael R. Morgan, brevet brigadier-general, April 9, 1865.	Chief commissary subsistence, Military Department of the East, and purchasing and depot commissary at New York City, N. Y.	New York, N. Y.
Captains.		
John P. Hawkins, brevet major-general, March 13, 1865.	Chief commissary subsistence, Military Department of the Lakes, and purchasing and depot commissary at Detroit, Mich.	Detroit, Mich.
Michael P. Small, brevet brigadier-general, April 9, 1865.	Chief commissary subsistence, Military Department of Arizona.	Prescott, Ariz.
Thomas C. Sullivan, brevet lieutenant-colonel, March 13, 1865.	Chief commissary subsistence, Military Department of Texas, and purchasing and depot commissary at San Antonio, Tex.	San Antonio, Tex.
John W. Barriger, brevet brigadier-general, March 13, 1865.	Assistant to Commissary-General of Subsistence.	Washington, D. C.
Thomas Wilson, brevet brigadier-general, March 13, 1865.	Chief commissary subsistence, Military Department of California, and purchasing and depot commissary at San Francisco, Cal.	San Francisco, Cal.
William H. Bell, brevet major, March 13, 1865.	Chief commissary subsistence, Military Department of the Columbia, and purchasing and depot commissary at Portland, Oreg.	Portland, Oreg.
Jeremiah H. Gilman, brevet lieutenant-colonel, December 31, 1862.	Chief commissary subsistence, Military Department of the Missouri, and purchasing and depot commissary at Fort Leavenworth, Kans.	Fort Leavenworth, Kans.
Samuel T. Cushing, brevet major, March 13, 1865.	Chief commissary subsistence, Military District of New Mexico.	Santa Fé, N. Mex.
William A. Elderkin, brevet major, March 13, 1865.	Purchasing depot and post commissary at Pueblo, Colo.	Pueblo, Colo.
Charles B. Penrose, brevet lieutenant-colonel, November 17, 1867.	Purchasing and depot commissary subsistence at Saint Louis, Mo.	Saint Louis, Mo.
William H. Nash, brevet major, November 17, 1867.	Chief commissary subsistence, Military Department of the Platte, and purchasing and depot commissary at Omaha, Nebr.	Omaha, Nebr.
Charles McClure, brevet major, August 17, 1866.	Purchasing and depot commissary subsistence at Sioux City, Iowa.	Sioux City, Iowa.
Andrew K. Long, brevet lieutenant-colonel, March 2, 1867.	Depot commissary at Cheyenne, Wyo	Cheyenne, Wyo.

I have the honor to be, very respectfully, your obedient servant,

A. B. EATON,
Commissary-General.

The Hon. the SECRETARY OF WAR.

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REPORT OF THE SURGEON-GENERAL.

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REPORT

OF

THE SURGEON-GENERAL.

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, October 1, 1873.

SIR: I have the honor to submit the following statement of finances and general transactions of the Medical Department of the Army for the fiscal year ending June 30, 1873:

FINANCIAL STATEMENT.

The funds subject to the requisitions of the Medical Bureau during the year ending June 30, 1873, were:

I. Appropriation for the relief of sick and discharged soldiers, under the act approved July 5, 1862:		
Balance remaining July 1, 1872		$11,914 17
Disbursed during the year		1,556 43
Balance June 30, 1873		10,357 74
II. Appropriation under the act of March 3, 1869, to enable the Secretary of the Treasury to settle the accounts of disbursing officers:		
Balance remaining July 1, 1872		$15,850 38
Transferred during the year		9,191 40
Balance June 30, 1873		6,658 98
III. Appropriation under act of March 3, 1873, to enable the Secretary of the Treasury to settle the accounts of disbursing officers		$275,000 00
No disbursements.		
IV. Appropriations for the Medical and Hospital Department of the Army for the time prior to July 1, 1870:		
Balance remaining July 1, 1872		$1,248,215 62
Refunded by the Pay Department		200,000 00
Received from sales		45 55
Received from other sources		6 95
		1,448,268 12
Disbursed during the year	$224,488 54	
Carried to surplus fund	500,000 00	
Balance June 30, 1873	723,779 58	
		1,448,268 12
V. Appropriation for the Medical and Hospital Department for the fiscal year ending June 30, 1871:		
Balance remaining July 1, 1872		$32,035 19
Deposited by Lt. Col. R. Murray May 15, 1872; covered into the Treasury September 30, 1872		212 80
		32,247 99

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Disbursed during the year	$1,975 12	
Balance June 30, 1873	30,272 87	
		$32,247 99

VI. Appropriation for the Medical and Hospital Department for the fiscal year ending June 30, 1872:

Balance remaining July 1, 1872	$25,361 21
Deficiency appropriations of March 3, 1873	8,000 00
Amount received from sales	124 75
Received for property lost or damaged	63 98
Received from all other sources	6 22
	33,556 16

Disbursed during the year	$26,552 28	
Balance June 30, 1873	7,003 88	
		33,556 16

VII. Appropriation for the Medical and Hospital Department for the fiscal year ending June 30, 1873:

Appropriation under act of June 6, 1872	$300,000 00
Disbursed during the year	252,303 20
Balance remaining June 30, 1873	47,696 80
Required for unsettled bills	32,400 00

VIII. Appropriation for support of the Army Medical Museum and Library of the Surgeon-General's Office, under act of June 6, 1872 $10,000 00

Disbursed during the year	8,859 26
Balance June 30, 1873, required for unsettled bills	1,140 74

IX. Appropriation for completing the Medical and Surgical History of the War, under act of June 8, 1872 $60,000 00

Disbursed during the year	12,706 12
Balance remaining June 30, 1873	47,293 88

X. Appropriation by act of June 6, 1872, for furnishing appliances to disabled soldiers $10,000 00

Disbursed during the year	1,198 62
	8,801 38

XI. Amount expended under the act of May 28, 1872, to provide for furnishing trusses to ruptured soldiers $7,936 17

Number of artificial limbs allowed during the fiscal year:

	In kind.	By commutation.
Arms	4	300
Legs	41	90
Feet	1	23
Apparatus	10	847
	56	1,260

HEALTH OF THE ARMY DURING THE FISCAL YEAR ENDING JUNE 30, 1873.

The monthly reports of sick and wounded received during the year represent an annual average mean strength of 24,844 white and 2,520 colored troops.

Among the white troops, the total number of cases of all kinds reported as taken on the sick-list was 48,767, being at the rate of 1,963 per 1,000 of mean strength. (That is very nearly two entries on the sick

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report during the year for each man.) Of the whole number 41,393, or 1,666 per 1,000 of strength, were taken on sick report for disease, and 7,369, or 297 per 1,000 of strength, for wounds, accidents and injuries.

The average number constantly on sick report during the year was 1,219, or 49 per 1,000 of strength; of these 978, or 39 per 1,000 of strength, were under treatment for disease, and 241, or 10 per 1,000 of strength, for wounds, accidents, and injuries.

The total number of deaths reported was 412, or 17 per 1,000 of mean strength. Of these 246, or 10 per 1,000 of strength, died of disease, and 166, or 7 per 1,000 of strength, of wounds, accidents, and injuries. The proportion of deaths from all causes to cases treated was 1 death to 118 cases.

Eight hundred and ninety-four white soldiers are reported to have been discharged on "surgeon's certificate of disability," being at the rate of 36 per 1,000 of mean strength.

The reports from the colored troops give the following figures, which do not include the white officers.

The total number of cases of all kinds reported was 4,305, or 1,708 per 1,000 of mean strength. Of these 3,625, or 1,438 per 1,000 of strength, were cases of disease, and 680, or 270 per 1,000 of strength, were wounds, accidents, and injuries.

The average number constantly on sick report was 122, or 48 per 1,000; of whom 94, or 37 per 1,000, were under treatment for disease, and 28, or 11 per 1,000, for wounds, accidents, and injuries.

The number of deaths from all causes reported was 53, or 21 per 1,000 of strength. Of these 46, or 18 per 1,000 of strength, died of disease, and 7, or 3 per 1,000, of wounds, accidents, and injuries. The proportion of deaths from all causes to cases treated was 1 death to 81 cases.

The number of discharges on "surgeon's certificate of disability" reported was 60, or 24 per 1,000 of mean strength.

WORK PERFORMED IN THE RECORD AND PENSION DIVISION.

The number of official calls for information from the Record and Pension Division is somewhat less than during the previous years, but still continues to be large. During the fiscal year terminating June 30, 1872, as stated in my last annual report, 19,237 applications were received, of which 4,827 remained unanswered at the close of the year. From that time to June 30, 1873, the total number of new applications for information received was 16,601, of which 11,080 were from the Commissioner of Pensions, 5,125 from the Adjutant-General of the Army, and 396 from miscellaneous sources. These new cases added to the 4,827 cases remaining on hand at the commencement of the year made 21,428 to be disposed of.

Search was made and replies furnished to the proper authorities in 19,875 of these cases, viz: 13,422 to the Commissioner of Pensions, 6,005 to the Adjutant-General of the Army, and 448 to miscellaneous applicants, leaving 1,553 unsearched cases on hand on the 30th of June, 1873.

As during previous years, the applications for information continue to refer chiefly to the cause of death or discharge from service and the hospital history of soldiers dead or disabled during the war of the rebellion. This information is used in the adjustment of pension and other claims, and serves both as a protection to the Government against fraudulent claims, and as an aid in establishing the merits of worthy ones. It is thought that hereafter the amount of such work required of this Office will slowly but steadily diminish.

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DIVISION OF SURGICAL RECORDS.

At the date of the last annual report there were entered on the registers abstracts of 207,135 surgical cases and of 39,291 surgical operations, or an aggregate of 246,426 surgical histories. During the year 12,738 cases of wounds and injuries, and 743 cases of operations, have been entered, making the aggregate 219,873 cases of wounds and 40,034 cases of operations, or a grand total of 259,907.

Supplementary information was added, results determined, &c., in 15,612 of these cases from the files of the Office, and in 2,683 cases the remote results of injuries were ascertained from the pension records.

Four thousand six hundred and sixteen reports, letters, and indorsements were received, indexed, and filed, and, in addition to routine acknowledgments, 566 letters were written.

ARMY MEDICAL MUSEUM.

Medical section.

Specimens in museum July 1, 1872	1,125
Specimens in museum July 1, 1873	1,168
Increase	43

Microscopical section.

Specimens in museum July 1, 1872	5,533
Specimens in museum July 1, 1873	6,095
Increase	562

Section of comparative anatomy.

Specimens in museum July 1, 1872	1,200
Specimens in museum July 1, 1873	1,270
Increase	70

There were embraced in the—

Surgical section.

Of specimens in the museum July 1, 1872	6,093
Of specimens in the museum July 1, 1873	6,272
Increase	179

Anatomical section.

Of specimens in the museum July 1, 1872	917
Of specimens in the museum July 1, 1873	995
Increase	78

Miscellaneous section.

Specimens in museum July 1, 1872	130
Received 12; transferred 8.	
Specimens in museum July 1, 1873	134
Increase	4

Fifteen casts of pathological specimens and two volumes of photographs were placed at the disposition of Prof. J. B. S. Jackson, to be presented to the museum of Harvard University.

From this it will be seen that although having attained an almost unprecedented size and value, this national collection continues to increase in importance and is becoming more generally appreciated and utilized. During the year 22,560 visitors registered their names.

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MEDICAL AND SURGICAL HISTORY OF THE WAR.

The distribution of the first part of the Medical and Surgical History of the War having been authorized by Congress, about 1870 copies were available for issue from this Office as shown by the following statement:

Sent to congressional committees, as specimens	12
Sent to Senators	1,000
Sent to Representatives	2,000
Sent to Library of Congress	50
Damaged and imperfect copies	70
To be issued by Surgeon General's Office	1,868
Total number of copies printed	5,000

The delivery of copies from the Government Printing Office commenced in February, 1873, and they have been distributed as fast as received.

The demand for the work has been very great, and the number of copies placed at the disposal of this Office proves insufficient to supply those who as ex-medical officers, having rendered satisfactory service through the war, may be considered as properly entitled to it.

The second part of the work is now going through the press as rapidly as possible.

The interest felt by the medical profession of the country in the attempt to establish a national medical library worthy of the name, in connection with the Army Medical Museum, has steadily increased, as shown by letters received and by numerous presentations of books and pamphlets during the year. The library now contains about 25,000 volumes and 15,000 pamphlets, and although still very incomplete when compared with similar national collections in Europe, is at present the largest in this country. A new catalogue is now being printed which will, it is believed, be a valuable contribution to medical bibliography.

I would respectfully renew the recommendation made in my annual reports of 1870 and 1872, "that the necessary legislation be procured to enable me to publish an edition of one thousand of the Catalogue and Tables of the Anatomical Section of the Army Medical Museum, in a style similar to Morton's *Crania Americana*." A bill for this purpose (H. R. 3453) passed the House, and was before the Military Committee of the Senate at the close of the last session of Congress, thus failing to become a law.*

* The following report, No. 56, from the Committee on Military Affairs of the House of Representatives, dated February 4, 1873, sets forth more fully the reasons for the above request:

[Report to accompany bill H. R. 3453.]

The Committee on Military Affairs, to whom was referred H. R. 3453, entitled "A bill to provide for the printing at the Government Printing Office of one thousand copies of the Descriptive Anatomical Catalogue of the Army Medical Museum," have had the same under consideration, and submit as a statement of the facts in the case, and as reasons for the passage of the accompanying bill, the following communications from the Surgeon-General, which are made a part hereof:

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, January 18, 1873.

SIR: In reply to your letter of the 17th instant, asking for "a statement of the facts going to show the *importance* of printing the Descriptive Anatomical Catalogue of the Army Medical Museum," contemplated in the bill H. R. 3453, I have the honor to represent that it is mainly through the printed catalogues that the collections of the museum are made available to scientific students, the majority of whom cannot personally examine them. Catalogues of the surgical, medical, and microscopical sections have been already printed, and their distribution has resulted, not only in widely diffusing a knowledge of the contents of the museum relative to those subjects, but in

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I am compelled to again repeat the statement made in previous reports that very serious and increasing injury has resulted to the service from the continued prohibition of appointments and promotions in the medical corps. The inducements of pay and rank, as at present established, are not sufficient to make the service attractive or remunerative to physicians already engaged in practice; and though, through the prerequisite rigid examination of candidates, it has heretofore been found possible to secure a high grade of talent and qualification, it is upon the younger portion of the profession, the recent graduates, that we must depend in filling up existing vacancies. As a large proportion of applicants fail to pass satisfactory examinations (which require in each case from three to six days) it will be the work of several years to restore the corps to the necessary standard of numbers as provided for in the act of Congress approved July 28, 1866. Although ambition to pass the Army medical board brings forward many of the most promising graduates of the medical colleges, additional inducements of rank, pay, and promotion are becoming more and more necessary, not only to make the number of candidates equal to the needs of the service, but to retain the most desirable of them in the service under their frequent inducements to accept advantageous offers in civil life. The action of the American Medical Association, representing the medical profession of this country, regarding the unequal position of medical officers of the

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large voluntary contributions to the collections. These have now attained such importance, that few recent works on military medicine, surgery, and hygiene have omitted to refer largely to the rich and reliable stores of information gathered within the walls of the museum.

It is now proposed to print an *anatomical* catalogue, in which the most important feature will be the craniological chapter. The measurement and comparison of human skulls is an interesting and difficult branch of the natural history of man, which has of late received much attention in the scientific world. It is a study that can only be pursued by a few anatomists, having access to large collections of crania, and the requisite experience and skill to measure accurately. Craniology, established as a science by Blumenbach and Camper, was prosecuted in this country by Morton with great success. His work was published by subscription. The medical officers of the Army have collected a much larger series of American skulls than have ever before been available for study. The collection embraces many ancient crania from caves and tumuli, from Greenland and Alaska to Florida and Arizona, and specimens from the majority of the existing tribes of Indians, and of the extinct tribes of the historic period. These, as well as a sufficient series of skulls of the white and black races, have been carefully measured and figured by orthographic drawings, so that the dimensions may be verified. Anthropologists in different parts of the world are anxious for the data thus accumulated for comparison with similar data published in Sweden, Russia, Germany, Italy, France, and England. The French government, through its legation here, after making repeated applications for the tables of cranial measurements, employed an artist to make casts and take photographs of a series of typical skulls; and a professor of Bonn made the study of the collection the object of a trip across the Atlantic. I mention these facts as an indication of the importance of the collection in the eyes of foreign savants; but it is especially with a view of enabling scientific students in our own country to utilize the collection that I urge the publication of this catalogue.

In addition to the unique collection of crania, the anatomical cabinet possesses a good series of preparations and drawings of the various organs of the body, properly classified and catalogued. To render these accessible to students, a printed catalogue is simply a necessity.

I take what I trust may be esteemed a pardonable pride in the reflection that this important collection has been accumulated through the almost unaided zeal and industry of the medical officers of the Army, and, I was about to say, entirely without cost to the Government. It is true, however, that a few preparations have been obtained by purchase, but by far the largest proportion have been collected by the medical officers, or procured in exchange for objects of ethnological interest collected by them.

If the members of the committee would contrast the results obtained with the small annual appropriation of $5,000 for the Army Medical Museum with the condit

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Army—as compared to that of other staff corps—is based upon actual investigation of the subject, and presents to Congress all the facts in the case.

I can only urge most earnestly upon your attention the pressing and absolute necessity for such legislation as will secure to our officers and soldiers the efficient and reliable attendance in wounds and sickness which the Government should provide, and will make a position in the medical corps of the Army, now as formerly, an object of ambition to the best educated and best qualified young men in the profession.

At the date of my last report there existed fifty-nine vacancies in the medical department, viz: two assistant medical purveyors, four surgeons, fifty-two assistant surgeons, and one medical store-keeper. During the past year one surgeon and one assistant surgeon have died, and three assistant surgeons have resigned; leaving at present sixty-four vacancies in the corps, viz: two assistant medical purveyors, five surgeons, fifty-six assistant surgeons, and one medical store-keeper.

J. K. BARNES,
Surgeon-General, U. S. A.

To the Hon. the SECRETARY OF WAR.

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of foreign national museums, and the large sums annually voted them, the progress here accomplished would be appreciated, the results being possible only because the labor has been performed, as incidental to their legitimate duties, by those already in the Government service.

I have restricted myself to a concise statement of the importance of the proposed catalogue. Should the members of the committee desire more details, I would respectfully suggest that Assistant Surgeon Otis, who is familiar with them, should be granted a hearing before the committee.

I am, sir, very respectfully, your obedient servant,

J. K. BARNES,
Surgeon-General United States Army.

Hon. JOHN COBURN,
Chairman Committee on Military Affairs.

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, D. C., January 24, 1873.

SIR: I have the honor to forward the following estimate of cost of printing and binding Catalogue of the Anatomical Section of the Army Medical Museum, viz:

For 1,000 copies:

Plates and wood-cuts	$20,000
Paper, composition, and printing	2,700
Binding, in cloth	1,000
Binding, in leather	2,500

For 5,000 copies the cost will be:

For plates	$38,000
Paper, composition, and printing	7,500
Binding, in cloth	5,000
Binding, in leather	12,500
Total cost, 1,000 copies, in cloth	23,700
Total cost, 5,000 copies, in cloth	50,500

Very respectfully, your obedient servant,

J. K. BARNES.
Surgeon-General United States Army.

Hon. JOHN COBURN,
Chairman Military Committee House of Representatives.

The committee recommend the passage of the accompanying bill. .

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REPORT OF THE PAYMASTER-GENERAL.

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REPORT

OF

THE PAYMASTER GENERAL.

PAYMASTER-GENERAL'S OFFICE,
Washington, October 10, 1873.

SIR: I have the honor to submit my annual report of the transactions of the pay department of the Army for the last fiscal year ending 30th June, 1873.

Tabular statements herewith inclosed show in detail the fiscal operations of the department for that year, summarily stated as follows:

RECEIPTS AND DISBURSEMENTS.

Balance on hand at beginning of fiscal year, (July 1, 1872)		$2,289,221 94
Received during fiscal year from Treasury		14,008,477 95
Received from soldiers' deposits		209,850 38
Miscellaneous receipts		221,079 32
Total		16,728,629 59
Disbursed to the Army	$11,056,522 35	
Disbursed to the Military Academy	176,010 97	
Disbursed on Treasury certificates	1,936,230 16	
Total disbursements	13,168,763 48	
Surplus funds deposited in Treasury	1,188,467 30	
Miscellaneous receipts deposited	218,407 00	
Balance in hands of paymasters June 30, 1873, to be accounted for in next report	2,152,991 81	
Total		16,728,629 59

The most important matter which it is my duty to bring before you is the imperative necessity of more paymasters. The sixth section of the act of 3d March, 1869, forbids any appointments and promotions in the staff of the Army until further legislation. The thirty-first section of the act of 7th July, 1838, forbids the detail of officers of the Army as acting paymasters. Thus the Pay Department has not the resources of the Quartermaster's or Subsistence Departments; for details for temporary duty in those departments have always been made, as also for any of the other departments of the staff.

There are now sixteen vacancies in the Pay Department under the organization provided by the act of 28th July, 1866, two in the rank of lieutenant-colonel and fourteen in the rank of major, five of these vacancies occurring since my last annual report. The duties of paying

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the troops during the last year have been performed in as satisfactory a manner as could be expected, considering the reduced number of paymasters. I shall do but simple justice to them when I say that they have faithfully and efficiently discharged their duties, oftentimes in very remote and exposed regions on the frontier. One excellent officer has been lost at sea and two attacked by robbers (fortunately foiled in their audacious attempts) during the last year, which facts exhibit the dangers incident to their tours of duty. The War Department should have it in its power to give respite and relief to many on remote stations, which can only be accomplished by an increase of the number of paymasters. But without reference to those considerations, an increase is needed for the absolute wants of the service.

I recommend that the number of paymasters be now established at fifty-two instead of sixty as provided by law in the eighteenth section of the act of 28th July, 1866, and a repeal of the interdict upon future appointments and promotions. It is but just that the power of promotion should be restored to the Executive; for what is an army or a staff corps good for, in which the principle of promotion is not recognized?

I recommend that a greater period than thirty days be allowed to an officer on leave of absence without reduction or pay. Thirty days barely suffices to enable an officer to travel from remote departments to the East and return. By the eleventh section of the act of 20th June, 1864, it was enacted that "leave of absence for other cause than sickness or wounds may be allowed an officer by order of his proper commander, without deduction from his pay and allowances: *Provided*, That the aggregate of such absence shall not exceed thirty days in any one year." A previous act (of 3d March, 1863) provided that the reduction should be one-half the pay and allowances of the officer.

The only other legislation concerning the Pay Department which I recommend is, that the pay of paymasters' clerks should be increased. It is now $100 per month. A large share of their duties is discharged in regions where the journeys are arduous and very dangerous—regions, too, having many attractions to draw them from our employment. The superior pay enjoyed by clerks of the Quartermaster's and Subsistence Departments has often worked to the injury of the Pay Department. Expert clerks of this Department have resigned and gone into those Departments. This is but the natural effect of inadequate compensation and of the existing inequalities.

The acts of 15th May, 1872, concerning the pay of the enlisted men, and establishing a system of deposits, have signally ameliorated their condition. But they have not yet reduced the number of desertions as much as we had hoped. Still the number of desertions in the Army, in the fiscal year ending 30th June, 1873, was five hundred less than in the previous year, and one thousand less than in the year ending 30th June, 1871. It would be difficult to devise legislation better calculated than those acts to encourage re-enlistments, reward faithful service, and diminish desertions. It may require the experience of several years to develop their full effect upon the rank and file of the Army. Some of the company commanders represent that the interest given for deposits should have been established at 6 per cent., instead of 4 per cent., per annum.

I append to this report a table exhibiting the average amount of deposits per company during the fiscal year ending June 30, 1873, in the various military departments. From this it appears that the largest amount of deposits per company was in the Department of Arizona,

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viz, $1,583; next, in the Department of the Columbia, $717 per company. In these departments there was the greatest amount of field operations, the troops being in campaign against the Apaches and Modocs.

This shows, as I expected, that in time of war the most deposits will be made by the enlisted men. During the civil war such a system would have given the Government the handling of many millions for years. During the last years of the war there were at least about 14,000 companies of troops employed. This, at the rate of $1,500 deposited by each company, would have made $21,000,000 per annum.

During the year ending 31st August, 1873, $246,643 (or an average exceeding $20,000 per month) have been deposited, the use of which the Government will have for an average period of about two and one-half years.

Respectfully submitted.

BENJ. ALVORD,
Paymaster-General United States Army.

The Hon. the SECRETARY OF WAR.

C.—*Soldiers' deposits in the fiscal year ending June* 30, 1873.

Department.	Number of troops.	Amount.	Average deposit per company.
Department of Arizona	24 companies	$37,991 92	$1,583 00
Department of the Columbia	21 companies	15,058 75	717 08
Department of the Missouri	52 companies	32,542 70	625 82
Department of Dakota	66 companies	35,443 75	537 03
Department of Texas	78 companies	36,308 01	465 48
Department of the Platte	70 companies	32,377 66	462 54
Department of California	20 companies	5,668 75	283 43
Department of the South	38 companies	9,491 50	249 77
Department of the Gulf	20 companies	3,172 00	158 60
Department of the Lakes	14 companies	830 00	59 28
Department of the East	32 companies	900 34	28 13
Washington, D. C	.....	65 00	.....
Total	435 companies	209,850 38	482 26

BENJ. ALVORD,
Paymaster-General United States Army.

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Statement showing the amount in the hands of each of the disbursing officers of the Pay from the Treasury or turned over by other agents, during the fiscal year ending June 30, or replacement in the Treasury, and the balance remaining unaccounted for, to be applied

Paymasters.	Balances in hands of paymasters and unaccounted for July 1, 1872.	Remitted from the Treasury in the year ending June 30, 1873.	Transferred from other paymasters.	Received from other sources.	Soldiers' deposits.
Assistant Paymasters-General.					
Nathan W. Brown	$186,997 91	$2,113,849 86	$170,476 88	$259 63 6,829 82	$566 09
Daniel McClure	4,345 36	1,296,000 00	117,621 68	1,966 95	195 00
Deputy Paymaster-General.					
Cary H. Fry*	197,491 67	790,033 88	6,000 00		
Paymasters.					
Franklin E. Hunt	176,799 66	1,549,000 00	8,517 46	1 91	
Henry Prince	38,629 08		575,895 60	5 83 5,327 51	289 25
Samuel Woods	101,416 12	142,500 00	457,641 19	2,040 81	300 00
Augustus H. Seward	94,556 60	1,216,400 00	181,055 12	1,265 88	199 83
Robert A. Kinzie	27,011 17	128,000 00	129,199 78	10 3,054 25	1,235 00
George L. Febiger	9,096 52	445,000 00	96,797 23	40 22 4,074 79	895 00
David Taggart	79,144 66	145,250 00	188,450 00	8 74 829 04	505 75
Henry C. Pratt	29,690 01	324,900 00	66,744 69	1,750 62	
Simeon Smith		1,134,740 00	169,260 65	1,499 33	25 00
Charles T. Larned	107,185 02	3,689 78	3,200 00	108 28 119 11	
Edward Wright	26,194 80		669,028 72	4,128 72	45 00
John P. Brua	14,609 15		185,884 46	369 88	
Rodney Smith	6,632 08		271,071 07	3,347 11	7,294 60
Joseph H. Eaton		1,538,597 69	87,977 03	823 00 556 97	
James B. M. Potter	102,471 41		236,923 08	1,963 39	2,745 00
George P. Ihrie†	58,529 67		34,800 97	135 63	3,555 00
William A. Rucker	15,531 47	21,000 00	206,688 96	2,220 58	2,779 00
Robert C. Walker	45,151 45		220,220 77	2,811 73	4,550 15
William H. Johnston			204,472 00	2,561 69	2,277 00
William R. Gibson	38,791 27	1,361,000 00	138,621 52	31 60 7,575 78	5,020 76
Charles J. Sprague	16,049 24		329,542 11	253 10 3,521 20	2,310 75
Thomas H. Halsey	4,462 41		66,048 42	676 76	695 00
William B. Rochester	80,440 67	55,059 82	364,745 83	10,221 68	855 00
Henry B. Reese	21,398 34		152,980 25	5,078 14	3,615 00
Nicholas Vedder	40,749 48		319,010 39	3,119 26	275 00
Edwin D. Judd	8,853 98		189,961 11	7,798 17	1,974 00
Valentine C. Hanna	37,630 06	87,500 00	206,803 18	1,758 03	830 00
William Smith	85,152 58		336,380 69	5,858 70	13,332 17
Charles M. Terrell	70,119 52		467,822 96	8,435 13	9,253 53
Thaddeus H. Stanton	2,514 96	534,953 92	272,218 93	9,593 47	11,020 49
George E. Glenn	27,477 14		217,875 70	10,697 53	12,276 25
Brantz Mayer	2,976 98		123,500 00	2,955 28	2,501 75
James W. Nicholls	75,906 96		300,070 44	6,616 05	5,006 00
Robert D. Clarke	52,880 25	651,000 00	103,645 55	3,566 07	65 00
James H. Nelson‡	236 46	237,238 00	104,654 60	337 92 9,713 32	21,995 47
John S. Walker§	11,081 82		66,773 35	114 00 388 20	1,404 00
Charles W. Wingard	13,869 51		61,948 00	539 50	2,172 00
James P. Canby	16,239 55		296,699 81	8,121 83	2,826 50
P. P. G. Hall	70,610 42		313,441 46	50 00 14,602 10	6,288 00
George W. Canbee	3,568 51		417,833 89	7,534 70	10,067 00
Edwin H. Brooke	48,696 93		275,806 55	8,090 18	8,946 00
Israel O. Dewey	44,151 44		269,850 67	6,401 66	12,078 64
James R. Mears	12,867 48		350,377 79	5,072 89	2,000 00
Robert Morrow	6,035 59	232,765 00	147,162 37	34 39 6,852 42	13,685 70
Asa B. Carey	23,033 68		188,161 22	3,262 39	9,870 00
William P. Gould	52,784 89		206,419 27	2,885 29	5,743 00
Frank Bridgeman	32,044 07		180,742 43	4,838 30	6,837 45
David Taylor	37,691 63		243,083 06	4,645 78	2,235 25
V. S. Eggleston	28,422 31		105,289 97	1,716 98	7,114 00
Total	2,289,221 94	14,008,477 95	11,105,398 86	221,079 32	209,850 3[illegible]

* Died March 5, 1873.

† Resigned July 1, 1873.

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Department and unaccounted for on the 1st of July, 1872; the amount remitted to each 1873; the amount accounted for by accounts and vouchers of expenditures, or by transfer, to unpaid dues for service rendered in the fiscal year ending June 30, 1873.

Total received and to be accounted for.	Expenditures.	Amount replaced in the Treasury.	Amount of miscellaneous receipts deposited.	Transferred to other paymasters.	Total amount accounted for.	Balance in hands of paymasters June 30, 1873.
$2,478,980 19	$614,644 88	$89,000 00	$6,829 82	$1,591,628 53	$2,302,103 23	$176,876 96
1,420,128 99	145,333 65	51,610 92	1,966 95	1,137,507 02	1,336,418 54	83,710 45
993,525 55	9,406 02	208,785 65	.....	775,333 88	993,525 55	.....
1,734,319 03	5,415 61	170,893 89	1 91	1,453,936 86	1,630,248 27	104,070 76
620,147 27	515,286 10	.....	5,327 51	50,259 34	570,872 95	49,274 32
703,898 12	279,092 40	55,125 92	2,040 81	328,614 08	664,873 21	39,024 91
1,493,477 43	133,294 03	115,069 29	1,265 88	1,048,033 35	1,297,662 55	195,814 88
288,500 30	243,180 69	16,522 26	3,054 25	192 15	262,949 35	25,550 95
555,903 76	296,410 31	6,911 44	4,074 29	229,578 80	536,975 34	18,928 42
414,188 19	80,677 78	68,349 80	829 04	264,331 57	414,188 19	.....
422,085 32	159,843 03	32,500 00	1,750 62	203,532 17	397,625 82	25,459 50
1,305,524 98	310,130 05	42,710 76	1,499 33	951,184 84	1,305,524 98	.....
114,302 19	36,248 13	.....	119 11	77,934 95	114,302 19	.....
699,397 24	658,304 46	.....	4,128 72	36,964 06	699,397 24	.....
200,863 49	159,789 75	.....	369 88	40,723 86	200,863 49	.....
288,344 86	168,623 06	279 71	3,347 11	84,254 01	256,503 89	31,840 97
1,627,954 69	1,368,847 96	425 00	556 97	90,171 34	1,460,001 27	167,953 42
344,102 88	144,643 59	85,000 00	1,963 39	97,499 98	329,106 96	14,995 92
98,021 27	37,108 63	.....	135 63	60,777 01	98,021 27	.....
304,220 01	170,614 54	.....	2,220 58	29,257 58	202,092 70	46,127 31
272,734 10	203,655 59	291 00	2,811 73	26,300 00	233,258 32	39,475 78
209,310 69	148,849 91	.....	2,561 69	47,755 70	199,167 30	10,143 39
1,551,040 93	345,746 28	90,000 00	7,575 78	1,031,965 33	1,475,287 39	75,753 54
351,676 40	104,846 93	31,390 05	3,521 20	204,447 10	344,205 28	7,471 12
71,882 59	58,680 60	144 46	676 76	12,180 77	71,882 59	.....
511,323 00	402,071 61	32,000 00	10,221 68	54,319 06	498,612 35	12,710 65
183,071 73	141,325 00	4 10	5,078 14	32,299 54	178,706 78	4,364 95
363,154 13	299,214 45	25,102 63	3,119 26	8,060 62	335,556 96	27,597 17
200,567 26	134,197 94	.....	7,798 17	3,134 15	145,130 26	63,457 00
334,521 27	257,604 93	.....	1,758 03	63,465 33	322,828 29	11,692 98
440,724 14	260,594 65	100 80	5,858 70	149,774 39	416,328 54	24,395 60
555,651 14	307,895 22	.....	8,455 13	66,679 84	383,030 19	172,620 95
630,301 77	755,163 15	8,000 00	9,583 47	52,007 46	824,764 08	5,537 69
269,326 62	194,632 00	.....	10,697 53	26,788 51	232,118 04	36,208 58
131,934 01	117,058 83	5,568 09	2,955 28	3,083 24	128,665 44	3,268 57
387,599 45	310,585 43	.....	6,616 05	24,671 88	341,873 36	45,726 09
811,156 87	640,328 43	.....	3,566 07	123,277 85	767,172 35	43,984 52
374,175 77	247,270 84	.....	9,107 81	1,185 37	257,564 02	116,611 75
79,761 37	58,215 52	.....	388 20	.....	58,603 72	21,157
78,329 01	61,602 38	8,574 18	539 50	6,000 00	76,716 06	1,812 95
823,887 69	250,601 75	346 40	8,121 83	64,342 07	323,412 05	475 64
404,991 98	267,529 51	.....	14,602 10	79,301 95	361,433 56	43,558 42
619,004 10	279,791 34	.....	7,534 70	123,134 59	410,460 63	28,543 47
341,539 66	279,597 06	11,237 98	8,090 18	1,613 30	300,538 52	41,001 14
332,482 41	259,379 24	4,113 80	6,401 66	9,400 00	279,294 70	53,187 71
370,318 16	313,845 75	.....	5,072 89	8,216 52	327,135 16	43,183 00
406,535 47	242,659 57	.....	6,852 42	106,986 77	356,498 76	50,036 71
224,387 29	134,963 75	10,390 27	3,262 39	63,986 35	212,592 76	11,734 53
267,532 45	110,480 75	.....	2,885 29	83,156 22	196,471 26	71,361 19
224,492 25	144,457 73	3,000 00	4,838 30	24,511 00	176,807 02	47,655 23
287,755 72	197,607 79	14,906 60	4,645 78	35,248 57	242,448 74	45,306 98
142,543 26	111,095 89	52 30	1,716 98	16,350 00	129,215 17	13,328 09
$27,534,628 45	13,166,763 48	1,188,467 30	218,407 00	11,105,398 86	25,681,036 64	2,152,991 81

: $645 51 of miscellaneous receipts not deposited.

§ Lost at sea January 27, 1873.

BENJ. ALVORD,
Paymaster-General, U. S. A.

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Statement of the account of the Pay Department with the several appropri-

Appropriations.	Balance July 1, 1872.	Amount of appropriations.	Surplus funds deposited by paymasters.	Miscellaneous receipts deposited by paymasters.	Amounts covered in by credit requisitions in settlement of accounts.
Definite.					
Subsistence of officers	$1,044,142 99			$1,015 00	$2,632,214 53
Forage for officers' horses	594,135 93				13,407 47
Pay in lieu of clothing officers' servants	216,393 41			6 96	
Pay to discharged soldiers, clothing not drawn	385,518 19				25,000 00
Subsistence of officers at Military Academy	14,706 58				
Pay in lieu of clothing officers' servants at Military Academy	246 54				
Pay of two and three years' volunteers	143,876 92			1,477 17	16,475,456 05
Bounty to volunteers, widows, and legal heirs	3,514,430 29				3,896,895 28
Pay of militia and volunteers	283,136 17				283,477 47
Pay and bounty, officers and men, Department of Missouri	188,982 03				
Pay, &c., of one hundred days' volunteers	4,274,877 68				500,000 00
Payment of expenses, reconstruction acts	143,986 29			10	
Bounty to volunteers and regulars on enlistment	1,987,805 93				2,582,125 59
Forage for officers' horses at Military Academy	7,422 78				
Incidental expenses of Quartermaster's Department	64,695 75			65 22	
Pay of the Army prior to July 1, 1871	4,436,480 20		$17,756 94	8,666 02	1,189,978 88
Pay of the Military Academy prior to July 1, 1871	464,610 67			299 94	
Transportation of officers and baggage prior to July 1, 1871	81,724 11			250 40	18,112 60
Total	17,847,172 46		17,756 94	11,780 81	27,616,667 87
For fiscal year ending June 30, 1872.					
Pay of the Army	630,392 38		1,177,149 59	21,183 61	
Mileage	625 50		19,924 17	2,184 36	
General expenses	90 39	$6,000 00	26 01	124 75	
Pay of the Military Academy	47,775 50		4,000 00	1,498 25	
Total	678,883 77	6,000 00	1,201,099 77	24,990 97	
For fiscal year ending June 30, 1873.					
Pay of the Army		12,105,591 32	19,898 08	11,549 67	23
Mileage		315,000 00		549 60	
General expenses		175,000 00		4 19	
Pay of the Military Academy		222,937 50		16 19	
Total		12,818,528 82	19,898 08	12,119 65	23
Indefinite appropriations.					
Bounty act July 28, 1866		11,144,736 11			
Traveling expenses, California and Nevada volunteers		28,000 00			
Traveling expenses, Michigan volunteers		500 00			
Total		11,173,236 11			
Aggregate.					
Definite appropriations	18,526,056 23	12,824,528 82	1,238,754 79	48,891 43	27,616,668 10
Indefinite appropriations		11,173,236 11			
Total	18,526,056 23	23,997,764 93	1,238,754 79	48,891 43	27,616,668 10

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ations subject to its control during the fiscal year ending June 30, 1873.

Repayments in settlement of accounts.	Total.	Amount drawn by requisitions of Pay Department.	Amount drawn by requisitions of War Department.	Amount drawn by debit requisitions in settlement of accounts.	Total.	Balance July 1, 1873.
$133 13	$3,677,505 65	.....	$1,001,692 67	$86,736 82	$1,088,429 49	$2,589,076 16
2 50	607,545 90	.....	757 80	.....	757 80	606,788 10
4 27	216,404 64	.....	139,725 66	42,178 71	181,904 37	34,500 27
.....	410,518 19	.....	92,671 20	106,828 09	199,499 29	211,018 90
.....	14,706 58	.....	7,893 16	.....	7,893 16	6,813 42
.....	246 54	.....	.....	.....	.....	246 54
31,752 28	16,652,782 42	$273,873 10	4,126,713 88	3,236 76	4,403,823 74	12,248,958 68
5,269 47	7,416,695 04	1,077,577 90	4,705,614 35	1,516 75	5,784,709 00	1,631,986 04
.....	566,613 64	.....	.....	.....	.....	566,613 64
.....	188,982 03	.....	.....	.....	.....	188,982 03
.....	4,774,877 68	.....	4,274,877 68	.....	4,274,877 68	500,000 00
20	143,986 59	59 82	16,444 81	297 64	16,802 27	127,184 32
1[illegible]00	4,570,099 52	.....	128 00	.....	128 00	4,569,971 52
.....	7,422 78	.....	.....	.....	.....	7,422 78
.....	64,760 97	.....	2,671 49	.....	2,671 49	62,089 48
241 [illegible]	5,653,123 52	27,000 00	2,542,511 19	394,887 27	2,964,398 46	2,688,725 06
.....	464,910 61	.....	334,653 64	.....	334,653 64	130,256 97
.....	100,087 11	.....	4,218 73	.....	4,218 73	95,868 38
[illegible]91 33	45,531,269 41	1,378,510 82	17,250,574 26	635,682 04	19,264,767 12	26,266,502 29
12	1,828,725 70	24,000 00	307,937 40	284 64	332,222 04	1,496,503 66
.....	22,734 03	.....	.....	.....	.....	22,734 03
.....	6,241 15	6,090 39	.....	.....	6,090 39	150 76
.....	53,273 75	.....	.....	.....	.....	53,273 75
12	1,910,974 63	30,090 39	307,937 40	284 64	338,312 43	1,572,662 20
.....	12,137,039 30	11,220,993 54	90,058 43	1,022 00	11,312,073 97	824,965 33
.....	315,549 60	289,133 20	.....	.....	289,133 20	26,416 40
.....	175,004 19	139,250 00	.....	.....	139,250 00	35,754 19
.....	222,953 69	179,000 00	.....	.....	179,000 00	43,953 69
.....	12,850,546 78	11,828,376 74	90,058 43	1,022 00	11,919,457 17	931,089 61
[illegible]367 80	11,177,123 91	563,000 00	10,612,351 61	1,772 30	11,177,123 91	.....
.....	28,000 00	28,000 00	.....	.....	28,000 00	.....
.....	500 00	500 00	.....	.....	500 00	.....
[illegible]367 80	11,205,623 91	591,500 00	10,612,351 61	1,772 30	11,205,623 91	.....
[illegible]491 45	60,292,790 82	13,236,977 95	17,648,570 09	636,988 68	31,522,536 72	28,770,254 10
[illegible]367 80	11,205,623 91	591,500 00	10,612,351 61	1,772 30	11,205,623 91	.....
[illegible]279 25	71,498,414 73	13,828,477 95	28,260,921 70	638,760 98	42,728,160 63	28,770,254 10

BENJ. ALVORD,
Paymaster-General United States Army.

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REPORT OF THE CHIEF SIGNAL-OFFICER.

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REPORT

OF

THE CHIEF SIGNAL-OFFICER.

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL-OFFICER,
Washington, D. C., November 1, 1873.

SIR: Instruction in military signaling and telegraphy has continued during the past year at the Signal-School of Instruction and Practice at Fort Whipple, Va.

One of the officers at the Military Academy at West Point is designated as instructor of military signals and telegraphing, but no report has been received from him, and it is not known what proportion of study and practice is allotted the several branches under his charge. Experience leads to the belief that the whole time of a skilled and industrious officer would be occupied by a course of instruction of the cadets at West Point, which should insure to them that proficiency in military signaling and telegraphy requisite to maintain equality in these branches with the officers of European services, or to be of any practical value to the Army of the United States. The recommendation made in previous reports that more special instruction at the Military Academy should be provided for, with a merit value affecting the standing of the cadets, is renewed, and it is also suggested that, to secure accuracy and uniformity, the officer to be in future charged with that instruction should have passed the course at Fort Whipple. There has been a partial instruction in the Department of the Missouri, under the charge of Second Lieut. Philip Reade, Third United States Infantry, and acting signal-officer of that Department. Although this officer has not had the advantage of the course provided at Fort Whipple, his industry and zeal have been attended with good results. His reports show fifty five officers to have been fully, and ninety-seven partially, instructed, and one hundred and two enlisted men fully, and three hundred and ten partially, instructed during the year.

The only full and regular course of instruction, that at Fort Whipple, has continued to be under the immediate direction of First Lieut. C. E. Kilbourne, Second United States Artillery, acting signal-officer, who has proved faithful and efficient. The report of commissioned officers instructed, (six in number,) with their respective amounts of field-practice, is given in Papers 1 and 2, hereto attached. The number of private soldiers instructed, as candidates for promotion to the grade of observer-sergeant, has been sixty-seven, and of those instructed as assistants to observer-sergeants, one hundred and twenty-seven. The details of their instruction, examination, promotion, and duty are presented in Papers 3 and 4.

The Signal-School of Instruction and Post of Fort Whipple, Va., has, during the year, assumed a character of permanence which has been much desired. New barracks, a mess-hall, a guard-house, and stables

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have been erected; and two buildings for officers' quarters, a building for the purposes of instruction, and a wagon-shed for the field-telegraph train, are in progress of construction. The hospital has proved ample for the requirements of the command, and has been well managed under the charge of Acting Assist. Surg. L. W. Ritchie. A large amount of work has been performed in the leveling and preparation of the ground occupied by the old fortifications. To complete the equipment of the post, in addition to the need for a commissary and quartermaster store-house, a wagon-shed for quartermaster wagons, and stabling for necessary public animals, a pressing want is felt for officers' quarters, those now provided not being sufficient for the number of officers regularly on duty and under instruction. The Fort has become of interest to, and is frequently visited by, distinguished American citizens and officers of foreign governments. It is desirable that the War Department, always considered responsible for its existence, should provide for it as a creditable and representative post. The care of the Secretary of War has been already directed to the comfort of the enlisted men. His favorable consideration is now asked to secure the requisite accommodation for the officers and the protection of the public property.

The field-telegraph train has been greatly improved, and drills with it are regular and satisfactory, having been under the special direction of First Lieut. R. P. Strong, Fourth United States Artillery, acting signal-officer, who has, during the year, been in immediate charge of the post, and has shown much energy in the performance of the duties confided to him. The other drills of the signal-service detachment, with signal equipments, and with, as well as without, arms, have been thorough, and through increased facilities as well as numbers discipline has been advanced. The system of duty and practice at Fort Whipple gives the military training necessary for the duties of the signal-service, and it imparts the accurate understanding of the special branches for which it has been established. It is the sole place in the United States where either commissioned officers or enlisted men can be completely instructed and tested in a branch of the military profession now recognized to be of prominent importance in time of war, and of no less utility in time of peace.

The study of military signaling and telegraphy requires that the student shall have the example and illustration of a skilled master. It would be unwise, in providing for the instruction of the Army, to ignore the thorough and well-appointed school already established, and to expect much benefit from the mere issue of text-books and equipments, where teacher and taught are alike ignorant. The plan, at one time suggested, that post-adjutants should become instructors, has proved a failure.

During the past year a number of officers have applied to be instructed at Fort Whipple; but the absence of any arrangement for details has prevented, for the time, a favorable consideration of their requests. It is desirable that a system of details should be established. The proper discharge of the duties of the field signal-service simply, *i. e.*, those embracing only such knowledge of military signaling and telegraphy as is constantly requisite at our frontier posts and for Indian wars, in time of general peace, or in the field during war, requires a special tuition of at least sixth months' duration, and officers of every regiment and company ought to pass through the course as a part of their requisite military study. The signal-service is an armed organization, and often needs the disciplined use of arms. Drills with arms, the movement of armed bodies, and the care of troops are as constitu-

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ent a portion of the duties at Fort Whipple as at any post of the Army, and the officers ordered there need lose nothing of their military practice. It is recommended that six officers, to be selected by the Secretary of War, upon the recommendation of their regimental and departmental commanders, be detailed for instruction in the duties of the "field" signal-service alone, as distinguished from the full duties of that service. These officers to rejoin their commands upon the completion of the course, their places to be supplied through other details, published in advance, in the manner customary in details for artillery instruction. The time of instruction would average about six months.

The officers so to be detailed should, however, be held to be of a class distinct from those charged with the full duties of the signal-service. The full duties of the signal-service include those applicable to peace as well as to war, and to attain proficiency in them the whole time of an officer, during years of study and application, is requisite. They comprise the duties of the field signal-service above described, and also all the duties of the service in relation to the display of warning signals, giving notice in advance of storms and floods. The latter involve the study of meteoric indications, and the practice and habit of controlling the organization spread over the United States; of managing the taking, telegraphing, receipt, collocation, and publication of reports from the different stations; of deducing correct results from them, and of giving necessary warnings, by signals or otherwise, when danger threatens. The value of the officer constantly increases with the experience had in the observation of storms, the study of meteoric indications, and the correct ordering of signals. To fulfill it reliably, the employment of a selected officer, once placed upon this duty, must be permanent. Provision should be made for such permanent employment for the same reason as it is made for the permanent employment of officers of the engineers and of ordnance. It will be fatal to the service if it is attempted to perform its duty by temporary details. The detail of officers for the duties of the full signal-service, as distinguished from the field signal-service, should, therefore, be regarded as almost necessarily permanent, and it should be made with the expectation of being permanent, until such time as Congress shall provide an established organization, to prevent the accidents and imperfect working to which a temporary service is always liable. The urgent need of such legislation is again presented for the consideration of the Secretary of War.

In the last annual report mention was made of the hardship involved in the fact that the officers detailed for the duties of this service were subjected to the misconstruction, and sometimes to the injustice, of those from whose commands they are involuntarily separated. Applications are frequently pressed to bring about the relief of officers, by persons wholly ignorant of their duties, which, if successful, would seriously embarrass the execution of the work required by law. It ought not to remain possible, through neglect of legislation, that the whole machinery of the signal-service should stop in an hour, as might already have happened had not the wise discretion of the Secretary of War been exercised to prevent so great a misfortune. Justice would seem to require that a service which has existed, and with admitted good result to the United States, for now thirteen years as a temporary service, and on which officers have served continuously through details of ten years' duration, in peace and in war, living and dying in this service alone, should be held to have established a claim to permanency. With interests now depending upon its daily work as great as can by

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any possibility rest upon any other branch of the service, there is no day but upon which it may be embarrassed, or even fatally crippled, by the removal of its skillful men at the junctures at which their services are most needed. The War Department, while held rigidly responsible for the failures of the service, has not yet been granted the legislation to provide for its proper discharge.

Recruiting for assignment to the signal-service has been conducted under the direction of the War Department, that the recruiting officers of the general recruiting service at designated stations should enlist and order to this office such men, they passing the required physical examination, as may be presented to them by the recruiting observer-sergeants of the signal-service. While the popularity of the service has been remarkable, its requirements are not always understood by those who apply to be enlisted. So much trouble has been occasioned to the Secretary of War by recruits complaining of the military duties considered by this office essential, that a series of circulars and instructions, shown in Papers 5 and 6, and paragraph 144 of Paper 7, hereto annexed, have been prepared and so brought to the notice of every applicant for enlistment, the recruiting sergeant, and the recruiting officer, that misapprehension seems to be impossible. The recruits are divided into classes, those for the "full" and those for the "field signal-service." The first mentioned are such as, in the judgment of the observer-sergeant, after examination by him, are fitted by education and intelligence for the full duties of the signal-service, including not only the duties connected with field-signals and telegraphy, but the duties of observers at stations of observation. These men are placed on duty at Fort Whipple, Va., as private soldiers of the signal-service detachment there stationed, for at least two months, after which they have the privilege on their own application, their conduct being good, of appearing before a board of officers as candidates to be placed under the tuition necessary to be assistants to observers on stations. Passing this examination the soldier continues the course, still performing his military duties until such time as he is reported by the instructor competent to be an assistant. He may then be detailed on duty as an assistant to an observer on station. After six months' service satisfactorily rendered as such assistant, during which time he recites regularly to the observer in charge, and upon a favorable report, he may be ordered to Fort Whipple to be placed under the additional special instruction given to candidates for the grade of observer-sergeant. This additional instruction lasts about two months, during which the candidate must serve on four tours of guard duty. Upon its completion he is ordered before a board of officers convened at this office for final examination on the special subjects of the instruction, and also before another board convened at Fort Whipple for report on his proficiency in the drill (with and without arms) and duties of the signal service detachment, and his understanding of the military duties and responsibilities of sergeants in the signal-service, this examination embracing the more essential of the Articles of War, Army Regulations, and customs of the service applicable to the duties of the grade above mentioned. On passing both of these boards, the candidate, as vacancies occur, is promoted to be sergeant in the signal-service, but, as a rule, is obliged to serve one month at Fort Whipple before being ordered on station, during which period, in addition to his other duties, he takes, under the direction of the instructor, such observations and makes such records and reports as may keep him familiar with the duties of an observer.

Applicants who, in the judgment of the recruiting observer-sergeant,

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are not fitted by education and intelligence for the full duties of the signal-service, but who are of such ability and character as to render them qualified for its field duties, *i. e.*, those of field-signals and telegraphy, as distinguished from those including the duties of observer-sergeant, are presented to the recruiting officer for enlistment to and assignment to the "field signal-service." The recruits so enlisted are not precluded from eventual advancement to the full duties of the signal-service and promotion, in case they prove fit and worthy.

A division is also made, after enlistment, among the private soldiers, by which those of good conduct, who pass specified examinations in elementary education, military signaling and telegraphy, and the duties and drill (with and without arms) of soldiers of the signal-service detachment, are announced as privates of the first class, and wear the special designation in uniform provided for them in General Orders 92, War Department, Adjutant-General's Office, dated October 26, 1872.

The propriety of legislation which will establish, as a special grade, that of the observer-sergeants of the signal-service, is urged upon the consideration of the Secretary of War. Very many of these men have enlisted with the hope that Congress will, in an organization of the signal-service, improve their position. This hope ought to become a realization. The great majority of the men of this service have enlisted for it directly under the promise, authorized by the Secretary of War, that they shall not be transferred to any other branch of the Army. They neither have nor would have enlisted under the general recruiting regulations, and without the promise above referred to the work intrusted to this office could not have been done.

In this connection it is proper to add that the action of the President in the promotion of observer-sergeant Theodore Smith to a lieutenancy in the Army, for good conduct, has been highly beneficial to the service.

The systematic course by which the enlisted men are selected, drilled, examined, instructed, tested by practice, instructed in higher branches, again examined and again tested before being intrusted with the management of stations, has thrown much labor upon the several boards of examination. The preliminary board, convened at this office for the examination of applicants to be placed under the first course of instruction, is composed of Bvt. Lieut. Col. Garrick Mallery, acting signal-officer and assistant, Bvt. Capt. H. W. Howgate, acting signal-officer and assistant, and Second Lieut. David J. Gibbon, acting signal-officer. This board has held a session on every Thursday during the year, and has examined (including re-examinations) three hundred and one applicants.

Of the civilians, whose enlistment depended upon the result of their examinations, eighteen were accepted, a much larger number being rejected. The proportion of those already enlisted, whose examinations were satisfactory, has exhibited the good judgment of the observer-sergeants who selected them, one hundred and twenty-one having passed the board, while but fourteen are in the list of failures, some of whom may yet pass on another examination.

The board convened at this office for the examination of candidates for promotion to the grade of observer-sergeant is composed of Bvt. Lieut. Col. Garrick Mallery, acting signal-officer and assistant; First Lieut. C. E. Kilbourne, acting signal-officer and instructor at Fort Whipple; and Bvt. Capt. H. W. Howgate, acting signal-officer and assistant. This board meets from time to time, as the instructor at Fort Whipple reports candidates ready for examination, and has examined

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during the year fifty-two candidates, of whom all but two have passed and been promoted.

The board convened at Fort Whipple for examination in the general duties of soldiers and non-commissioned officers, and the special drill of the signal-service is composed of First Lieut. George S. Grimes, Second United States Artillery; First Lieut. C. E. Kilbourne, Second United States Artillery; and First Lieut. C. C. Wolcott, Third United States Artillery, all acting signal-officers.

The morning report of Fort Whipple for September 30 includes sixteen non-commissioned officers and one hundred and thirty-one privates as present. Of these, seven non-commissioned officers and thirty-seven privates are under special instruction.

The work done at this office has become of large amount, comprehending many details. Never ceasing for a moment, it is necessary that reliefs of officers and enlisted men shall be so arranged that each shall take up his duty at a particular point and perform it in the manner prescribed. At once the greatest expedition and minuteness are required, both of which can only be obtained by a number of persons working at the same time on different parts of the same general duty, with a system of checks and counter-checks to prevent error, or at once to detect its cause and the responsibility for it. The experience thus far obtained has resulted in the issue of regulations and rules for the government of the office, (Paper 8,) to which attention is invited.

Bvt. Lieut. Col. Garrick Mallery, acting signal-officer and assistant, has continued during the year to have charge of records, general correspondence and orders, with the superintendence of enlistments and other details specially assigned to him. The various duties in his care have been faithfully discharged.

The correspondence of the office in its several divisions is extensive, forty-six thousand four hundred and thirty-two letters having been sent, and two hundred and seventeen thousand five hundred and seventy-five received during the year, the record of which is classified in Paper 9. The aggregate of the correspondence is two hundred and sixty-four thousand and seven letters and documents sent and received, exclusive of publications and telegrams. The numerous requests for information on subjects, some only indirectly connected with the duties of this office, require of themselves much attention.

The office is in communication with many foreign correspondents. The following-named below in order of time are some of those who have, at their request, been regularly furnished with copies of the weather maps and bulletins, viz, Robert Scott, esq., director Meteorological Office, London, England; Professor Buys Ballot, director Meteorological Institute of the Netherlands, Utrecht, Holland; Professor H. Mohn, director Royal Meteorological Institute of Norway, Christiania, Norway; Capt. N. Hoffmeyer, director Royal Meteorological Institute of Denmark, Copenhagen, Denmark; Professor Dr. Prestel, Emden, Germany; Monsieur Marie Davy, chef de la division météorologie de l'Observatorie physique central de Montsouris, Paris, France; Monsieur Harold Tarry, vice-president Meteorological Society of France, Paris, France; Imperial German Naval School at Kiel, Germany; His Majesty the King of Würtemburg, Stuttgart, Germany.

First Lieut. Henry Jackson, acting signal-officer and assistant, has continued to discharge the duties of property and disbursing officer with skill and industry. Seven thousand nine hundred and eighty-nine accounts have been examined and settled in the property division, excluding those of officers of the Army responsible for signal property,

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which number four hundred and seven. Six hundred and six instruments have been purchased, and six hundred and twelve issued. (Paper 10.) Lieutenant Jackson has also continued the collection of statistics to complete the lists of elevations above sea-level, requisite for the accurate reduction of meteorological observations. There have been added this year sixty-three levels of lines of railroads received from railroad engineers, seven lines of levels received from civil engineers, fourteen levels collected from other sources.

The library of the office has been increased to two thousand four hundred and seventy bound volumes, exclusive of two hundred and thirty pamphlets, and one hundred and two maps and charts. The works are selected wholly for their value to the scientific branches connected with the duties imposed upon it, and many of them have been obtained without expense to the United States through the system of exchanges established. Paper 11 is a list of the foreign contributions to the library.

The act of Congress approved March 3, 1873, entitled "An act making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, eighteen hundred and seventy-four, and for other purposes," contained the following proviso: "Provided that the chief signal-officer may cause to be sold any surplus maps or publications of the signal-office, the money received therefor to be applied toward defraying the expenses of the signal-service, an account of the same to be rendered in each annual report of the chief of the signal-service." This account is presented in Paper 12, being exclusively for the amounts received for the sale of maps.

Until recently, the office has not been able so far to increase the issue of its publications as to allow of any considerable surplus, nor have persons interested yet become generally aware of their privilege to obtain, at a trifling expense, the publications which before had been applied for and necessarily refused. It is believed that the above provision will lead in future to a wide distribution of meterological knowledge without expense to the United States.

Brt. Capt. H. W. Howgate, acting signal-officer and assistant, has continued to have general charge of instruction and general supervision of the observer-sergeants and assistants to observers at stations, and of the receipt, record, and publication of the weather reports, which duties, together with others specially assigned to him, have been performed with marked devotion and ability.

The following record of stations is reported by this officer:

ALPENA, MICHIGAN.

[*Official Number*, 85.]

Latitude	45° 05′
Longitude	83° 30′
Elevation of barometer above sea-level	608 feet.

The location of the office has not been changed since the date of the last report, and Sergt. F. P. Bayes still remains in charge, having given general satisfaction by the manner in which his reports have been rendered.

The station was inspected in March, and such trifling irregularities as were discovered by the inspector promptly corrected.

Cautionary signals are not displayed here on account of the uncertainty of telegraphic communication, although a favorable point for them; but warnings are sent to the observer to notify the shipping

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whenever danger is anticipated, and these warnings have been attended with beneficial results.

The several instruments are well located. The instrument shelter has been moved from the window to the roof of the building, and thoroughly painted.

Bulletins are not issued, as no reports from other stations are received; but the regular reports are published in the weekly papers in a condensed form.

AUGUSTA, GEORGIA.

[*Official Number*, 23.]

Latitude	33° 2[illegible]′
Longitude	81° 54
Elevation of barometer above sea-level	172 feet.

No change has been made in the location of the office since the last report, nor is any considered necessary at present. Sergeant N. D. Lane and Private Frank Mangels, both of whom were on duty at last report, still remain, and have given satisfaction.

The station was inspected in February, and found in good condition, with the exception of some slight irregularities, which were corrected immediately, when pointed out.

The instruments are well exposed and in good condition.

The only reports received are those from the Western Gulf stations, which are here transferred to Washington.

During the year four hundred and eighteen bulletins of local observations have been furnished the press, and published, in addition to the regular monthly means of barometer and thermometer, amount of rain, &c.

The afternoon Probabilities are received regularly, and printed in the newspapers on the morning of the day succeeding their issue from the central office.

BALTIMORE, MARYLAND.

[*Official Number*, 18.]

Latitude	39° 18′
Longitude	76° 38
Elevation of barometer above sea-level	45.19 feet.

No change has been made during the year in the location of the office, but an additional room was furnished the observer in February free of cost, through the courtesy of the Baltimore Fire Insurance Company. This room is immediately adjoining the office, and adds materially to the comfort of the observer and to the facilities for the proper discharge of his duty.

The station was inspected in February last and found in excellent condition. As the inspector reported the men overworked, another assistant was ordered to the station March 1, and since that date two assistants have been on duty. Sergt. H. J. Penrod still remains in charge, and has perfor med his duties conscientiously and satisfactorily. Private Otto Schutze, the assistant at the date of the last report, and his successor, Private J. W. Craig, were both called in for promotion during the year, and passed a successful examination. Private Mark Downing was relieved for misconduct September 8, and is now at

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Fort Whipple on signal duty. Privates F. Anderson and Charles Freyer are the present assistants.

Full reports have been received during the year from all stations, and furnished to the press, in addition to the usual publications in the form of bulletins and maps. Until November 22, 1872, manifold maps were issued; but since that date printed maps have been sent from the central office, and are received for distribution by 2 p. m., daily. This change has given general satisfaction, as the morning Probabilities, printed in these maps, are received in advance of the issue of the afternoon papers containing them.

During the year twelve thousand eight hundred and eighty-seven maps and four thousand seven hundred bulletins have been issued, and six hundred and forty-five reports furnished to the press. All the daily papers publish the Synopsis and Probabilities with regularity, and have manifested a gratifying interest in the service at all times.

The observer states that inquiries concerning the weather are made daily at the office, and that mechanics, artists, merchants, sailors, invalids, physicians and surgeons are to a greater or less extent governed by the Probabilities received from the central office in pursuing their daily avocations.

Twenty-one cautionary signals were displayed during the year, of which nine are reported by the observers as justified in the immediate vicinity of the station.

As to known benefits to commerce or other interests the observer remarks as follows:

October 24-26, 1872.—Sailing-vessels took the warning and remained in port.

March 9-10.—Some damage was done in the more exposed portions of the city to unfinished buildings.

March 15-17, 1873.—Considerable damage was done by the storm to some unfinished buildings in the more elevated portion of the city. Vessels generally remained in port during the display of the signal.

March 19-22, 1873.—Though there was no gale in Baltimore, a fierce tornado is reported from off "York Spit" at midnight of March 20, which lasted fifteen minutes.

March 24-27, 1873.—Steamers due from Norfolk were delayed by the wind three hours.

March 29-30, 1873.—Considerable damage done by the storm. No lives lost or vessels wrecked.

BOSTON, MASSACHUSETTS.

[*Official Number*, 13.]

Latitude	42° 21′
Longitude	71° 04′
Elevation of barometer above sea-level	77.4 feet

No change has been made in the location of the office since the last annual report. It is in the heart of the city, and convenient to the different newspaper and telegraph offices, while the roof from which the cautionary signals are displayed affords a good view of the greater part of the harbor.

Reports from twenty-four other stations are received here, of which number four are received from the north and transferred to New York. These reports are bulletined regularly, and furnished to the press, and manifold maps of the morning reports are also printed.

During the year three thousand four hundred and forty-two maps and four thousand one hundred and ninety-three bulletins have been issued, and two thousand and fifteen reports furnished to the press. The Synopsis and Probabilities received through the agency of the Associated

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Press are regularly published by the daily papers, which also print the monthly abstracts and other data furnished by the observer. The issue of post-office bulletins to four hundred and three offices was commenced July 15, 1873, and been continued daily, with the exception of Sundays since that date. These bulletins contain the midnight Synopsis and Probabilities issued from the central office, and two copies are mailed to each post-office. The total number of copies issued to date amounts to sixty-two thousand and sixty-two.

Previous to this issue, the observer wrote manifold copies of the Probabilities for display in connection with the regular bulletin. Of these, one thousand one hundred and eighty-eight copies were made and posted.

Sergt. H. E. Cole, who was in charge of station at the date of the last report, was relieved April 12, 1873, on account of ill-health, and succeeded by Sergt. E. A. Lewis, who was succeeded September 24 by Sergt. P. G. Dietz, who is now in charge. Private Dunne was ordered in for promotion July 1, and succeeded by Private E. D. Holbrook, the present assistant. When the issue of post-office bulletins was commenced, two additional assistants were sent there to aid in getting them out promptly. One of these men was relieved for misconduct September 23, and his place filled by a better man. Upon the recommendation of the inspecting officer, a fourth assistant was sent to the station September 29, making four now on duty.

The station was inspected in January, and again in September of this year. At the first inspection, the instruments and records were found in excellent condition, and the observer, Sergeant Cole, highly commended for his zeal, intelligence, and excellent habits. His relief was a source of regret to the business men with whom he held official relations.

The full report of the September inspection has not yet been received, but the inspector reported by telegraph the unfitness of Sergeant Lewis, and recommended his immediate relief.

The meteorological committee at the station, of which Mr. Thomas Gaffield is chairman, has been active in rendering such assistance as was called for from time to time by this office, and also in extending courtesies to the observer on duty.

During the year thirty-four cautionary signals have been displayed, of which number twenty are reported by the observer as justified at the station.

The observer remarks in reference to these signals, as follows:

November 29–*December* 1, 1872.—Severe storm reported along the coast.

December 26–27, 1872.—Heavy storm along the coast, and shipping all remained in port

January 5–6, 1873.—Severe storm on the coast; all shipping remained in port.

January 23–25, 1873.—Shipping remained in port. The display of this signal commended by the press.

January 27–28, 1873.—Shipping remained in harbor. Storm severe on the coast south of this station.

February 7–8, 1873.—Storm along the coast reported severe. Vessels going to sea took warning and remained in port.

February 16–17, 1873.—Shipping remained in port. Severe storm along the coast.

February 21–22, 1873.—Very severe storm; shipping remained in port. The press commended the display of the signal.

March 10, 1873.—Short, but severe storm.

March 11–12, 1873.—Shipping remained in port. Storm severe on the coast.

March 15–17, 1873.—Southeast snow-storm, followed by very high westerly wind. The shipping remained in port, with the exception of the steam-yacht Grace Irvin which put to sea, after being specially warned that a danger-signal was flying, and was lost, with all on board, four or five persons.

March 29–*April* 1, 1873.—The shipping would not sail at night, but waited for daylight, while the signal was displayed.

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April 12–15, 1873.—Shipping remained in port during display of signal; storm long and severe.

May 2–4, 1873.—Vessels remained in port; blowing hard outside.

August 13–15, 1873.—Storm very severe outside. Many vessels staid in port, and a few small boats were washed from their moorings.

The following extract from a special report, made by Sergeant Cole, upon the meteorological conditions attending the great fire of November 9 and 10, 1872, is believed to possess sufficient general interest to justify its insertion here:

During the progress of the fire, the wind varied from N. N. W. to N., with a velocity from five to nine miles per hour, weather being clear and pleasant and the air dry, the fire breaking out shortly after 7 p. m., November 9, 1872. Between 2 and 3 a. m., November 10, standing at the intersection of School and Devonshire streets, on the north or windward side of the fire, looking south toward and at a distance of about 500 feet from it, the indraught of air along the ground through Devonshire street toward the burning buildings assumed the character of a brisk wind, probably sixteen or eighteen miles an hour, while little or no wind could be felt on School street. At this time the heat over the fire, which covered an area of probably 800 or 900 feet square, was so great as to cause fire, smoke, &c., to be carried in spirals to a very great height.

At a point on South street, which is on the south or lee side of the fire, and about 200 feet from it, the induced currents, at about 3.15 a. m., were very strong, rushing through the street toward the fire, which then probably covered over 1,000 feet square, with a velocity of probably thirty or thirty-five miles an hour, carrying the fire bodily to windward.

This state of affairs appears to be the reverse of the Chicago fire, where the force of the wind prevailing at the time was sufficient to overcome the induced currents, and the fire burned to leeward. In the present case, it appeared as if the light wind permitted the indraughts to rise at a considerable angle after reaching the fire, leaving a large space of highly rarified air in their front, inducing stronger currents to rush in, which, meeting the indraught, gave the spiral or whirlwind form to the ascending currents; and this idea is strengthened by the fact that on the outskirts of the fire the flames, when breaking through the windows of the buildings, always tended upward, joining with the whirling mass of flames and smoke which covered that portion of the city with a fiery dome, while the flames from those buildings more in the center or vortex of the fire formed downward a perfect cataract of flame, destroying even the granite blocks with which the streets were paved. The surface-wind generally was accelerated on all streets leading to the fire, but more especially so on the south side of it.

During the night a flock of ducks passed at a great height over the fire, and the light reflected from their plumage made them appear as fire-balls passing rapidly through the air. Many who marked their flight called them meteors, and likened them to the fire-balls said to have been seen in the Northwest during the great fires in that region.

As an example of the great heat diffused, I would state that during the night I exposed a thermometer in the observatory to the full glare of the fire, when it rose nearly 5°, although placed upward of two thousand feet from the burning buildings and dead to windward of them.

No other meteoric phenomena were observed, the weather remaining unchanged.

BRECKENRIDGE, MINNESOTA.

[*Official Number*, 82.]

Latitude	46° 16′
Longitude	96° 38′
Elevation of barometer above sea-level	966 feet.

The location of the office remains unchanged since last report. It is the best that can be obtained in the place, and affords good exposure for the several instruments. The building occupied is a frame one, and not well adapted for the comfort or convenience of the observer, and it is recommended that suitable provision be made before another winter to protect the observer from the inclemency of the weather. As reports are not received here from other stations, bulletins are not issued.

Sergt. C. A. Shaw remains in charge, and has rendered all reports in a satisfactory manner. He reports that much interest is manifested by travelers in the working of the office and the different instruments. Strangers in passing through the town seldom fail to call at the office.

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BUFFALO, NEW YORK.

[*Official Number*, 33.]

Latitude	42° 53′
Longitude	78° 55′
Elevation of barometer above sea-level	662 feet.

No change has been made in the location of the office at this station during the year, nor is any considered necessary, as the present one is in the business center of the city. Reports from fifty-five other stations are received here and published in the regular manner, in the form of maps, bulletins, and press reports. During the year five thousand four hundred and one manifold maps, six thousand four hundred and seventy-two bulletins, and one thousand and sixty-two press reports have been issued. In addition to this issue one thousand five hundred and forty-nine copies of the Synopsis and Probabilities were made on manifold forms and posted with the regular bulletins before July 22, on which date the issue of post-office bulletins was commenced to one hundred and fifty-three offices. Two copies are furnished each office daily, and the total number issued to date is twenty-one thousand four hundred and twenty. The leading newspapers publish the tabulated reports and also the monthly abstracts, while all of them print the latest Probabilities received.

The meteorological committee of the board of trade continues to assist the office whenever practicable, and its members retain their interest in the service. Sergt. William McElroy was relieved from charge of the station January 24, and reduced to the ranks for failing to render his mail reports regularly. He was succeeded by Sergt. W. H. Colesberry, who has given satisfaction by the promptness and regularity with which all reports have been made. Privates T. A. Taylor and D. O'Leary have been called in successively from this station during the year for promotion, and both passed the required examination. Four assistants are now on duty, and are kept steadily employed in getting out the various publications of the office and attending to their daily distribution. The station was inspected in March, and some slight irregularities discovered in the records, which were attributed to the neglect of Sergeant McElroy.

The instrument-shelter was also found defective, and as soon as the necessary arrangements could be made a new one was built on the roof of the office-building in accordance with the plan adopted by this office. Twenty-seven cautionary signals have been displayed during the year, of which the observer reports thirteen fully, and seven partly, justified at the station. The observer remarks as follows in reference to the result of these warnings:

October 15–16, 1872.—The cautionary caused considerable apprehension, as the barometers had fallen rapidly in the previous eight hours, and was therefore generally observed, no vessel leaving the harbor during its display.

October 30–31, 1872.—The signal caused much comment among "lake-men," quite a number of vessels being ready to go out, but were detained on account of the signal until the morning of the 31st.

November 7–8, 1872.—The storm very severe; all vessels remaining in port during the display. One barge, with all on board, was lost while trying to make the harbor in the morning.

November 13–15, 1872.—Generally observed by lake-men. Two vessels attempted to leave the harbor but failed. The wind blew a gale on the lake, its velocity being one-third greater than that shown by the anemometer on shore.

November 27–28, 1872.—Gale very severe, but the wind being from southwest for several days previous, and no vessels leaving port, only those bound in were caught.

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November 30–*December* 4, 1872.—These cautionaries were generally heeded. Owing to ice in the upper lake few vessels had left this port during the week. The captains of two vessels stated that they escaped danger by the display of the signal. Most vessels are laid up for the winter.

May 7–9, 1873.—Signal heeded by mariners, no vessels leaving port during the display.

September 12–13, 1873.—No vessels left port on account of signal.

September 15–16, 1873.—Signal attracted much attention from every one. A fleet of twenty-three vessels remained in port on account of the signal, which caused much excitement and anxiety among mariners.

BURLINGTON, VERMONT.

[*Official Number*, 45.]

Latitude	44° 29′
Longitude	73° 15′
Elevation of barometer above sea-level	223 feet.

The location of this office has not been changed since last report. No reports from other stations are received here, and, consequently, no bulletins are issued. The local observations and the monthly abstracts are printed regularly by the several newspapers published at the station.

The Synopsis and Probabilities are received irregularly and copied by the observer on the proper manifold form and posted with his local reports.

The station was inspected in December, 1872, and numerous irregularities found. As these appeared to have been caused by the youth and inexperience of the observer, Sergt. George H. Ellery, he was retained on duty upon the recommendation of the inspecting officer, and since that date his reports have been regularly and properly rendered.

The members of the meteorological committee express themselves as desirous of doing anything in their power to promote the interests of the service.

The records of the office have been twice used during the year as evidence in legal cases.

There is no assistant on duty at this station, and as the observer's health had become impaired by his close attention to duty, Sergeant Fee was sent to relieve him for one month from July 1, and he was permitted to rest for that period.

CAIRO, ILLINOIS.

[*Official Number*, 53.]

Latitude	37° 00′
Longitude	89° 10′
Elevation of barometer above sea-level	352 .2 feet.

No change has been made in the location of the office since last report. Reports from fifteen river-stations are received and bulletined each afternoon when the telegraphic communication is perfect, but none are received in the morning or at midnight.

Three hundred and ninety-eight reports of local observations have been furnished the local press, and one thousand nine hundred and two bulletins of river reports posted in appropriate places. The river observations have been continued daily during the year, the top of the levee being used as the bench-mark, and the zero of gauge fixed at the point reached by the extreme low water of December, 1871. The range

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between this point and high water of 1867, which reached the top of the levee, is fifty-three feet.

The station has not been inspected since the date of last report.

Sergt. Thomas L. Watson was relieved February 18, 1873, for neglect of duty, and was succeeded by Sergt. D. W. Harnett, who left the station without authority, and was reduced to the ranks while absent. He was subsequently apprehended, tried, and found guilty of desertion, and is now serving out his sentence for that crime. Sergt. E. Garland was ordered to succeed him, and is now at the station. His reports are not promptly rendered, and it is intended to relieve him unless a change for the better is made.

Private James M. Watson was ordered in for promotion April 1, and after going through the regular course at Fort Whipple passed a satisfactory examination, and was succeeded by Private E. F. Brady, who still remains and has given satisfaction.

CAPE MAY, NEW JERSEY.

[*Official Number*, 54.]

Latitude	38° 56′
Longitude	74° 58′
Elevation of barometer above sea-level	14.2 feet.

The location of the office at this station remains unchanged. No reports are received here from other stations, the station being used, as during the last year, for observation and report and the display of cautionary signals only. Owing to the present defective telegraphic arrangements much delay has been experienced in the transmission of the regular reports, the midnight ones, with few exceptions, being delayed until the following morning. The papers published at this station are furnished with the local observations daily during July and August, and weekly during the rest of the year.

Sergt. T. F. Townsend remains in charge of the station, and has rendered all his mail reports promptly and in good shape. The station was inspected in January of the present year, and instruments and records reported by the inspector in good condition.

Thirty-six cautionary signals have been displayed during the past year, and of this number twenty-one are reported as justified at the station. In reference to these signals the observer remarks as follows:

October 24–26, 1872.—Wind blew in heavy squalls during the afternoon and evening of the 25th.
January 5–6, 1873.—Tornado twenty miles up the coast at 3 p. m. of the 5th.
January 16–17, 1873.—Heavy squalls, with rain.
January 23–25, 1873.—Wind in heavy squalls.

No signal orders can be sent to this station after 7 p. m., as the telegraph-office closes at that hour.

There is a great demand for the Probabilities among the guests at the several hotels during the watering season, but the local papers are unable to obtain them on account of the early closing of the telegraph office.

The following is an extract from the semi-annual report of the observer for the six months ending July 1, 1873, in reference to the interest manifested in the service at this place:

Owing to the uniform correctness of the prognostications, public interest is largely on the increase and corresponding benefits derived. The buildings in this locality

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being entirely of wood, a large amount of labor and material, particularly in paint, is annually saved by the forecasts and signals.

I find also a growing confidence in the cautionary signals among sea-faring men, and a more thorough knowledge in the use of their meteorological instruments than has heretofore existed.

CHARLESTON, SOUTH CAROLINA.

[*Official Number*, 21.]

Latitude	32° 45′
Longitude	79° 55′
Elevation of barometer above sea-level	61.4 feet.

The office remains unchanged since last report. Owing to the want of proper telegraphic facilities no reports from other points are received here at present. The monthly summaries and the local observations are regularly furnished to, and published by, the daily papers. Twelve cautionary signals have been displayed at this point, six of which are reported as fully justified at the station.

The observer remarks as follows upon some of these signals:

October 23–24, 1872.—Several vessels remained in harbor on account of the signal.
March 19–20, 1873.—No vessels left port during the display.
April 1-2, 1873.—A fishing-boat upset in Ashley River, and one man drowned.

Sergt. J. E. Evans, who was in charge at the date of last report, was relieved in October, for the benefit of his health, which had become impaired by close attention to duty. He was succeeded by Sergt. M. L. Hearne, who still remains, and has given satisfaction.

Privates Sidney Powell and Thomas Cleary have been called in successively for promotion, and passed the required examination satisfactorily. Private J. J. Nanry is the present assistant, and is commended by the observer for his good conduct. A lively interest in the service is manifested by the merchants and other business men at this station, and regret is expressed at the non-receipt of full reports from other coast-stations and those in the interior of the Southern States. The telegraphic service, so far as the transmission of the local reports are concerned, has been performed satisfactorily.

CHEYENNE, WYOMING TERRITORY.

[*Official Number*, 68.]

Latitude	41° 12′
Longitude	104° 42′
Elevation of barometer above sea-level	6,058 feet.

No change has been made in the location of this office since last report, the present location being a very desirable one.

The reports from Santa Fé and Denver are transferred here east and west. Seven hundred and fifty-two bulletins have been issued during the year and two hundred and eight reports, together with the local observations furnished the press.

Sergt. A. C. Dobbins remains in charge, and has given general satisfaction by the promptness and regularity with which reports have been rendered. He was unable to take observations on the 7th, 8th, and 9th of May on account of sickness, and as the instructed civilian assistant had left the station, the record would have been interrupted but for the courtesy of the post surgeon at Fort D. A. Russell, who

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made observations at that post and furnished copies of the same to the observer, thus enabling him to complete his record.

To guard against the recurrence of such accidents, Private M. H. Perry was ordered to the station as an assistant, May 8, 1873, and still remains. His conduct is commended by the observer.

CHICAGO, ILLINOIS.

[*Official Number*, 37.]

Latitude	41° 52′
Longitude	87° 38′
Elevation of barometer above sea-level	657 feet.

The office was moved June 19, 1873, to a building on the corner of Madison and La Salle streets, in order to get it nearer the several telegraph offices. Two rooms are occupied, giving fine facilities for the work of this station, which has largely increased during the year, and is still performed under some of the disadvantages resulting from the disastrous fire of 1871. Full reports from seventy-five regular stations are received here, besides the special reports from the river-stations when they are made. These reports are published in the regular manner, and during the year thirteen thousand six hundred and ninety-two maps have been printed and distributed, two thousand two hundred and forty bulletins issued and posted, and two hundred reports furnished to the press. The issue of post-office bulletins to seven hundred and ninety-eight offices began June 17, and since that date one hundred and sixty-eight thousand seven hundred and thirty-two copies have been sent out. As the matter for these bulletins is seldom received before 2 o'clock a. m., and the copies ready for mail must be in the post-office by 5 a. m., the work is necessarily done with great rapidity, and in view of these facts the accuracy and regularity with which the issue is made deserves commendation. Considerable difficulty has been experienced in the receipt and transfer of reports, owing to the frequent interruption of one or more of the telegraph lines over which they should be received, and the consequent necessity of transferring them to some other office with as little loss of time as practicable, especially at midnight, when every minute is of importance. The different telegraph-offices have to be visited regularly at report hours, and their condition ascertained, and the action of the observer governed by the information thus received. His instructions on this subject are as follows:

When the regular Atlantic and Pacific circuit to New York is interrupted, all reports received will be sent by Pacific and Atlantic circuit to Cincinnati, and the observer at that point notified that communication cannot be had with New York. If this latter circuit is also down, the reports will be sent by the Western Union to the observer in New York, if that route is open, and when it is not, will be filed in the Western Union Office, addressed to the Chief Signal-Officer at Washington, to be sent by any available route at the disposal of the company.

Reports for Saint Louis and Cincinnati will be sent to those points by the Western Union whenever the regular Pacific and Atlantic circuits are broken. Reports for Milwaukee will be sent by the Western Union whenever the Great Western lines to that point are down.

Some few delays have occurred from a natural reluctance on the part of operators to admit that their wires were down, and some from other causes; but, as a whole, this part of the work has been well performed by all parties.

The station was inspected in April of this year, and such irregulari-

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ties as were found to exist pointed out and corrected. Several changes have been made during the year in the management of the station, Sergt. Theodore Mosher being transferred to the central office January 2, 1873, and Sergt. A. C. Ford, his successor, to Nashville, Tenn., May 1, 1873.

Sergt. W. S. Kauffman has been in charge since the last-named date, and has given satisfaction by the prompt and accurate manner in which his various duties have been performed, under circumstances of unusual difficulty.

Of the assistants who have been on duty here during the year, one (Private J. D. M. Fee) was called in for promotion, and after going through the usual course of instruction at Fort Whipple passed a satisfactory examination; one was called in for misconduct; one (Private H. R. Pullan) deserted; one was discharged; one transferred to another station, and one to the central office. Six regular assistants are now on duty, and kept busily employed in getting out and distributing the large daily issue of maps and bulletins.

A lively interest is manifested in the service among all classes of citizens, and the labors of the office are properly appreciated.

Thirty-eight cautionary signals have been displayed during the year, of which twenty are reported fully justified, and two partly justified, at the station. In this connection the observer remarks as follows:

October 15–16, 1872.—Gale much more severe on the lake than at the port. Many vessels remained in harbor on account of the warning; but six or seven which went out while the signal was flying were compelled to return during the night.

October 28–31, 1872.—The office was visited by twenty-eight captains of vessels and owners during the display of the signal, more than half of whom stated that they remained in port on account of the warning given.

November 4–6, 1872.—The wind blew in heavy gusts, and was more severe out on the lake. The office was visited by many captains of vessels and others interested, and many vessels remained in port on account of the warning.

November 6–8, 1872.—The wind blew in gusts and was severe on the lake. The office was visited by a number of captains, and many staid in port on account of the warning given.

November 13–14, 1872.—Numbers of vessel-men called at the office, many of whom stated that they delayed their departure on account of the signal.

November 26–28, 1872.—This gale is represented to have been one of the most severe ever experienced on the lake. One schooner known to have delayed her departure on account of the warning. The office as usual was visited by numbers of seamen.

December 7–10, 1872.—But few vessels leaving port now. One schooner reported to have remained in port on account of warning.

April 3–7, 1873.—Storm of wind, snow, and rain.

April 21–23, 1873.—Propeller detained in harbor by the signal, which was justified.

September 17–18, 1873.—The wind was much heavier on the lake than at the port. Many vessels remained in, and those which attempted to go to sea were compelled to return. The papers make mention of numerous vessels damaged by the storm.

September 24–25, 1873.—The weather was bad, and several captains of vessels called at the office, who were detained by the signal, and with good effect, as news has been received of the loss of at least one vessel on the lower part of the lake.

September 26–27, 1873.—For a southwest gale and the season of the year, it is said to be unusually severe. The papers contain accounts of numerous injuries to vessels that were caught in the blow, several of which were wrecked on the east shore. A number of vessels remained in port, and probably escaped damage.

The leading newspapers publish reports regularly, and since the issue of post-office bulletins commenced have received, through the energy of the observer, the latest one sent to him from the central office in Washington.

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CINCINNATI, OHIO.

[*Official Number*, 65.]

Latitude	39° 06′
Longitude	84° 26′
Elevation of barometer above sea-level	614 feet.

The location of the office of this station has not been changed since last report, but through the liberality of the members of the chamber of commerce a second room, rendered necessary by the increased amount of work thrown upon the station, has been added and furnished at a mere nominal expense to the Government.

Reports from thirty-one other stations are received here in the morning, and the same number in the afternoon, with the addition of those from the special river-stations during the spring and fall months. At midnight seventy reports are received for the map, which is printed and distributed each morning by 7 o'clock a. m. Most of these reports are transferred to Washington as received, which materially increases the work of the observer, who is obliged to keep himself constantly informed of the condition of the telegraph-lines in order that he may not lose valuable time at the moment for action. When the regular circuits are not working from any cause, the observer is instructed to transfer all reports promptly to any available line that will transmit them promptly to their destination.

During the year, eighteen thousand three hundred and one maps, and seven thousand six hundred and sixty-one bulletins have been issued, and two thousand three hundred and thirty-seven reports furnished to the press. The issue of post-office bulletins to seven hundred and fifty-three offices was commenced April 7, 1873, and up to date two hundred and sixty-four thousand five hundred and two copies have been printed and mailed, two copies being sent to each office. As the mail closes at 5 o'clock a. m., this part of the work requires to be done promptly and with system. No instance has been reported where these bulletins were printed too late for the mail, which speaks well for the conduct of the men charged with the duty.

River observations are made regularly, and during the year one thousand eight hundred and eighty-three river-bulletins have been posted on the appropriate form.

The bench-mark, from which measurements are made, is the extreme low-water mark of September 15, 1858, which was twenty inches above the bed of the river. The leading newspapers publish full tabulated reports daily in excellent form, and also the latest Probabilities received, together with the monthly abstracts and the Weekly Weather Chronicle. At no other station has the press taken a livelier interest in the service or done more to promote its usefulness.

The monthly abstracts of the weather prepared by the observer are models of meteorological forms, both in appearance and contents, and it is hoped they will be followed at all stations where the press is willing to publish them.

Sergt. E. F. Maynard was in charge until May 16, 1873, when he deserted, while under the influence of liquor, and was succeeded by Sergt. Theodore Mosher, who is still in charge and has performed his various duties in an unusually able and intelligent manner. He is highly spoken of by the meteorological committee of the chamber of commerce, by the members of the press and the general business men with whom he is daily thrown in contact. Twice during the year Sergt. N. Gorom

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was in temporary charge on occasions when Sergeant Maynard was unable from sickness to perform his duties. Of the assistants on duty during the year, one was called in for misconduct, one transferred to Fort Whipple as orderly sergeant, one, Private Edwin Booth, ordered in for promotion, and one, Private Martin Evans, committed suicide while temporarily absent from station on leave. At present there are six assistants on duty, one of whom is a sergeant, sent to relieve the observer of a portion of his responsibility. During the industrial exposition held at Cincinnati through the month of September, the morning Probabilities were sent from the central office to Sergeant Mosher and printed by him daily in the exposition building, on a press kindly furnished for the purpose by the executive committee.

A full set of standard station-instruments was also sent him for exhibition and excited favorable comment from the visitors and the press.

These instruments were sent to Chicago at the close of the exposition for display there. Two extra assistants were furnished the station during the exposition, and were ordered to other points at its close.

The members of the meteorological committee of the chamber of commerce are entitled to the thanks of the Chief Signal-Officer for their uniform kindness to the observers individually, and for the public-spirited interest they have constantly manifested in the service.

The station has been twice inspected during the year, once in November, 1872, and again in April, 1873. On both occasions it was found in good condition, with records neatly kept and up to date.

CLEVELAND, OHIO.

[*Official Number*, 34.]

Latitude	41° 30′
Longitude	81° 47′
Elevation of barometer above sea-level	682.7 feet.

The office was moved April 30, 1873, upon the recommendation of the inspecting officer, to the third story of the National Bank building, on the corner of Water and Superior streets, where two rooms are occupied, affording ample space for the station work.

The roof exposure for instruments and the display of cautionary signals is an excellent one.

Reports from fifty-five other stations are received here and published in the regular manner, manifold maps being issued daily.

During the year two thousand one hundred and thirty-seven maps and three thousand three hundred and ninety bulletins have been issued, and seven hundred and two tabulated reports furnished to the press, in addition to a daily abstract of the local observations.

The greater part of this work was done after the relief of Sergt. J. N. Martin, March 18, 1873, as under his charge the station fell into general disrepute and the work was grossly neglected. He was relieved upon the recommendation of the inspecting officer and ordered to Fort Whipple, where, after reduction to the ranks, he was discharged the service. Sergt. L. M. Crist was transferred to the station from Rochester, where he had been serving creditably as an assistant, and by his energy and tact soon inspired new interest in the service, and by his promptness in furnishing reports to the press secured their regular publication in tabulated form.

Becoming insubordinate he was ordered to Fort Whipple, but deserted before reaching that post. He was succeeded May 1 by Sergt.

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Will Stromberger, who still remains in charge and has given satisfaction both to the central office and to the citizens. One assistant has been transferred to the central office and one ordered in for promotion, but has not yet completed the regular course of instruction at Fort Whipple. Private M. L. Landers, the present assistant, is commended by the observer for his good conduct.

The station has been twice inspected since the last report, once in October, 1872, and again in March, 1873. At the last inspection numerous grave irregularities were discovered, which led to the relief of the observer as before stated.

Instruments and records are now reported to be in good condition.

Twenty-five cautionary signals have been displayed during the year, of which number fourteen are reported as justified at the station.

In reference to these displays the observer remarks as follows:

October 15–16, 1872.—Several vessels left the harbor about 11 p. m. of the 15th, and about 2 a. m. of the 16th encountered a severe wind and were compelled to return to port to escape accident.

November 7–8, 1872.—Reports from the lake state the wind was very severe and several vessels received more or less injury before they were able to reach harbor. The display of the signal was the means of keeping many vessels in port that would otherwise have left in the afternoon and thereby been exposed to imminent danger.

November 13–14, 1872.—A heavy wind commenced about 1 a. m. of the 14th, which from the statements of captains of vessels must have been much greater than thirty miles per hour. Several vessels that left the harbor contrary to the warning were compelled to return to the harbor, where they arrived with much difficulty and narrowly escaped serious injury.

November 24–25, 1872.—Signal justified. No vessels are now leaving port, navigation being about to close, and none will again leave until the opening of navigation in the spring.

November 28–*December* 1, 1872.—The wind was very severe on Lake Erie. One vessel near the port is supposed to have been lost. All the vessels in the harbor are laid up for the winter.

April 15–18, 1873.—No damage reported. It is stated that the lake was made very rough by "cat squalls." Navigation not yet opened.

September 15–16, 1873.—Several schooners remained in port because of the warning, the captains of which stated that they always worked by the signal. Four schooners went out but had to put back, reaching port about midnight, the captains of which immediately came to the office to learn the prospects.

September 17–18, 1873.—One steamer and several schooners remained in port on account of the warning.

A gratifying amount of interest is at present manifested in the service by the members of the meteorological committee, by the press, and by the citizens generally.

The editors of the several morning papers have recently effected an arrangement with the Atlantic and Pacific Telegraph Company, by which they receive regularly, in time for publication, the midnight Synopsis and Probabilities issued from the central office.

CORINNE, UTAH.

[*Official Number*, 70.]

Latitude	41° 30′
Longitude	112° 18′
Elevation of barometer above sea-level	4,249 feet.

The office was moved temporarily on November 2, 1872, to a small house in the upper part of the city, and on December 3, 1872, to its present location on Montana street, between Sixth and Seventh streets.

Sergt. S. W. Beall remains on duty and manages the station alone. He has rendered all reports regularly and promptly, and in a satisfac-

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tory manner. Reports from nine other stations are received here irregularly, of which two are transferred to the Chicago circuit.

During the year three hundred and four bulletins have been issued, and two hundred and thirty-three reports of local observations furnished the press.

The station has not been inspected since the date of the last report, and the present condition of the office is therefore unknown.

DAVENPORT, IOWA.

[*Official Number*, 51.]

Latitude	41° 30′
Longitude	90° 38′
Elevation of barometer above sea-level	603.3 feet.

No change has been made in the location of the office during the year, nor is any considered necessary at present, as it would be difficult to find another possessing the same advantages.

Reports from twenty-nine regular stations are received here, and during the spring and fall from all the special river-stations.

Three thousand four hundred and thirty-five bulletins have been issued and ninety-three reports furnished the press. In addition to this number one thousand two hundred and three river-bulletins have been issued and furnished the press.

The gauge used for the river observations was constructed by Colonel Macomb, United States Engineers, on the pivot on draw-bridge pier of the Government bridge, between Davenport and Rock Island. It is in the Davenport channel, and is cut in the stone-work and painted in black and graduated into feet and tenths. Its zero-point is the low water of 1863, the lowest water known.

The station was inspected in June of this year, and the instruments and records found in such bad condition that the observer in charge, Sergt. Max Marix, was at once relieved from duty and discharged the service. He was succeeded by Sergt. S. P. Ruthven, June 19, since which date a marked improvement has been observed both in the form and promptness with which reports are transmitted. One assistant has been transferred during the year to the central office, and one, Private T. S. Collins, called in for promotion and passed the required examination satisfactorily. Private B. E. Light is the present assistant, and is favorably mentioned by the observer.

The local observations, river-reports, and monthly abstracts are furnished regularly to the press and usually published.

Mr. Dalzell, the chairman of the meteorological committee, has displayed a marked interest in the welfare of the service, and done all that laid in his power to promote its usefulness.

The telegraphic service from this station has been of the most unsatisfactory nature, and it is to be hoped that an improvement will be made in this respect at an early date.

DENVER, COLORADO.

[*Official Number*, 76.]

Latitude	39° 44′
Longitude	104° 58′
Elevation of barometer above sea-level	5,135 feet.

The office was removed March 15, 1873, to the Woodward building, on Holliday street, between Fifteenth and Sixteenth streets, to get a bet-

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ter exposure for the instruments than could be obtained at the former location, and to get it nearer the telegraph-office, which is located in the same building. The present office is on the third floor of the building, is 14 by 20 in size, and has two windows facing the northwest, from one of which the instrument-shelter projects. The shelter was removed from the old office, and put up again without injury or expense to the Government.

The station was inspected in November, 1872, and all instruments and records found in good condition.

Sergt. Henry Fenton still remains in charge, and has forwarded all mail reports with commendable promptness and in a creditable shape. The morning and midnight telegraphic reports have most of the time failed to reach the central office on time, owing to the present unsatisfactory telegraphic facilities. No reports are received here from other stations, and therefore no maps or bulletins are issued.

During the year, seven hundred and eight reports of local observations have been furnished the press. There is no assistant at this station. Sergeant Fenton's experience and knowledge of the country have been of service to the central office in the work of establishing the station upon Pike's Peak.

DETROIT, MICHIGAN.

[*Official Number*, 36.]

Latitude	42° 21′
Longitude	83° 07′
Elevation of barometer above sea-level	656.3 feet.

No change has been made in the location of the office since the date of last report. Reports from fifty-five other stations are received here and published in the usual manner on manifold maps and bulletins and in press reports.

During the year three thousand five hundred and nineteen maps, six thousand seven hundred and fifty-eight bulletins have been issued, and seven hundred and four press reports furnished for publication. The regular issue of post-office bulletins to three hundred and thirty-seven offices was commenced July 21, since which date forty-seven thousand eight hundred and fifty-four copies have been sent out.

Before the work of printing the Synopsis and Probabilities was commenced two thousand and fifty-two copies of them were manifolded and posted with the regular bulletins.

Reports from two other stations are received here for transfer to the New York circuit.

The station was inspected in April, 1873, and the records and instruments found in good condition, although the conduct of Sergt. F. Mann, the observer, was such that his relief was recommended by the inspector and immediately ordered. Sergt. William Finn took charge of the station April 5 and still remains, having given satisfaction by the manner in which his duties have been performed.

Two assistants have been relieved during the year for misconduct, and one, Private Will Stromberger, called in for promotion, and passed the required examination.

Four assistants are now on duty and are all kept busy in getting out the various publications of the office.

Twenty-nine cautionary signals have been displayed during the year of which six are reported as justified at the station.

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The observer remarks, in reference to these displays, as follows:

November 27–28, 1872.—The wind was gusty and boisterous, making a rough river.
November 28–30, 1872.—The wind gusty and boisterous, making a rough river.
April 30–*May* 3, 1873.—According to dispatches received from points on Lake Huron, the wind is reported to have been blowing a gale there.
May 6–9, 1873.—Newspaper reports state that there was very heavy weather, with violent southwest wind outside of this on Lake Huron on the 7th.

The leading newspapers publish the tabulated reports more or less fully, the monthly abstracts, and the latest Probabilities received at the station.

The interest in the service has been largely increased since the issue of the post-office bulletins brought the work of the office more directly before the people of the State.

DUBUQUE, IOWA.

[*Official Number*, 98.]

Latitude	42° 30′
Longitude	90° 45′
Elevation of barometer above sea-level	665 feet.

The office is located in Sullivan's block, in the business center of the city, corner of Maine and Sixth streets. The building being higher than any of the surrounding ones, its roof affords a very good exposure for the several instruments. The instrument-shelter is of the authorized form, facing north. The station is supplied with two full sets of the standard instruments, all of which are reported in good condition. The station was established by Sergt. Robert J. Bell, who began taking regular observations on July 10, 1873.

This station is one of observation only, and no reports are forwarded to this office by telegraph, except occasional mid-day observations, in accordance with instructions on this subject.

No reports are received here from other stations, and therefore no maps or bulletins are issued. The local observations are furnished regularly to the press.

A river-gauge has been constructed by the observer, who is instructed to make regular daily observations, and report them by telegraph to Saint Louis over the regular circuits. The gauge is located at the foot of Seventh street, and its zero point is low-water mark of October, 1864, and is 21 feet 10 inches below the high-water mark of April 22, 1870. The average depth of water in the channel is 18 feet below low-water mark of 1864.

The station was inspected in August of the present year, and the instruments and records found in the "best possible condition."

Much interest is manifested in the service by all classes of citizens at this place, and an earnest desire is expressed for the receipt of reports from other stations.

DU LUTH, MINNESOTA.

[*Official Number*, 40.]

Latitude	46° 48′
Longitude	92° 06′
Elevation of barometer above sea-level	642.7 feet.

No change has been made in the location of this office during the past year. Sergt. John Dascomb, who was in charge at the date of

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the last report, was transferred, on his own request, to Vicksburgh, Miss., October 4, 1872, and was succeeded by Sergt. R. R. Martin, who still remains in charge.

The station was inspected in May of the present year, and found in a creditable condition.

Upon the interest in the service manifested by the observer, the inspector remarks: "The observer's journal shows that during the notable storms extra observations have been made by him, and in one case hourly observations for a period of fifteen hours."

Upon the recommendation of the inspector, Private Addison Slamm was sent to the station as assistant May 2, 1873, and is favorably mentioned by the observer for his attention to duty.

No reports are received here, and therefore no maps or bulletins are issued. The press is furnished with the monthly summaries and the local observations, but the former only are published at present.

During the past year twenty five cautionary signals were displayed, and of this number fourteen are reported as justified at the station. The following remarks are made by the observer upon incidents connected with these signals:

November 9–12, 1872.—The schooner Monitor was ready to sail, but remained over twenty-four hours on account of storm-signal flying.

November 13–14, 1872.—This has been the severest storm felt here in a long time Three schooners and one steamer were driven ashore, and two of the schooners wrecked. The breakwater and the freight warehouses, docks, &c., of the Northern Pacific Railroad Company and elevator damaged

December 12–15, 1872.—Signal justified—wind, accompanied by snow.

Considerable interest is manifested in the service by the business community of this place, as the following extract from the observer's semi-annual report for the six months ending July 1, 1873, will show:

Judging from the increased interest manifested, the service appears to have made a rapid stride in the public favor. Very few captains of vessels leave this port without first coming or sending to this office for information concerning the probable character of the weather.

Early in January last I was called on by the resident engineer of the Northern Pacific Railroad Company, who informed me that a regular series of meteorological observations was about to be commenced under the auspices of that company at various stations along the line of their road, these observations to be alike in all respects with those of our service. I gave all the information and instructions necessary for the work, and urged the importance of having them taken synchronously with those of the signal-service. According to this arrangement, stations were established at Brainard, Minn., and Fargo, Dak., and copies of the report furnished to the central office.

The weekly reports from the stations referred to above have been regularly received at the central office, and form a valuable addition to its records.

EASTPORT, MAINE.

[*Official Number*, 94.]

Latitude	44° 55′
Longitude	66° 54′
Elevation of barometer above sea-level	61.25 feet.

The office is located in the custom-house, in the business center of the town. The bay is one square directly east of the building. The exposure for roof-instruments and thermometers is as good as can be obtained. The instrument-shelter projects from a window facing north.

The station was opened April 1, 1873, by Sergt. W. C. W. Shreck, who still remains in charge.

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Private Daniel C. Murphy was ordered to this station as assistant July 22, 1873.

All reports have been forwarded promptly by mail, and the general management of the station has been satisfactory.

No reports are received here, and therefore no maps or bulletins are issued.

Ten cautionary signals have been displayed since the station was established, of which five are reported as justified at the station.

Much interest is taken in the service by mariners, and the observer reports two cases where captains put in from sea in passing by Eastport to ascertain whether the cautionary signal was flying or not.

The station was inspected in September, 1873, and is reported in good condition.

ERIE, PENNSYLVANIA.

[*Official Number*, 97.]

Latitude	42° 07′
Longitude	80° 03′
Elevation of barometer above sea-level	671.5 feet.

The office is located in a three-story brick building on the corner of State, the principal business street of the city, and the instruments have as fair an exposure as can be obtained. The instrument-shelter is of the authorized pattern, and projects from a window of the office-room facing north. Sergt. E. F. McComas opened the station on May 25, 1873, and remains in charge. Previous to August 4, 1873, no reports were sent by telegraph to the central office, and none were received from other stations, and therefore no maps or bulletins were issued.

Since the above-mentioned date, however, reports are received from fifty-five stations, and three hundred and fifty maps and eight hundred and five bulletins have been issued, and the local observations, together with the bulletins, furnished the press and published regularly. On account of the increased work, an assistant, Private H. L. L'Eesterre, was ordered to this station August 2, 1873. The station was inspected in August, 1873, and everything found in creditable shape. Three cautionary signals have been displayed here, one of which is reported justified at the station.

Much interest is manifested in the service at this station by members of the press and the business community.

ESCANABA, MICHIGAN.

[*Official Number*, 49.]

Latitude	46° 44′
Longitude	87° 16′
Elevation of barometer above sea-level	601.6 feet.

The location of the office remains unchanged since last report, but the instrument-shelter has been remodeled and built with double walls of lattice-work, to guard against the effect of radiation from adjoining walls. No reports are received here from other stations, and consequently no maps or bulletins issued, but the local observations are furnished to the Weekly Tribune, in tabulated form, and regularly published. The station has been inspected twice since last report—once in October, 1872, and again in April, 1873. At the last inspection the records and instruments were found in excellent condition. Sergt. R. J. Bell was

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relieved from charge of the station on account of ill-health March 11, 1873, and was succeeded by Sergt. J. H. Garrard, who remained until ordered in and reduced to the ranks, for neglect of duty in failing to forward his mail reports promptly. Sergt. Edward Lloyd is now in charge, and has given satisfaction.

Private A. J. Berry was ordered to the station as an assistant November 18, 1872, and still remains, having performed his duties in a commendable manner. In compliance with urgent requests from the citizens of the station and of ship-owners at other points on the lakes, it was fitted up for the display of cautionary signals soon after the last inspection.

The first signal was ordered up May 18, but owing to some difficulty in the telegraph line was not received at the station. Since that date three others have been ordered, one of which was reported as not justified at the station.

There is no meteorological committee at this station; but one of the citizens, Mr. S. C. Baldwin, connected with the Chicago and Northwest Railroad, has shown a marked interest in the service, and done all in his power to assist the observer in making it useful.

FORT BENTON, MONTANA.

[*Official Number*, 71.]

Latitude	47° 52′
Longitude	110° 40′
Elevation of barometer above sea-level	2,674 feet.

No change has been made in the location of the office. As during the previous year, much irregularity has again been experienced in the transmission of the telegraphic reports, chiefly owing to the uncertainty of telegraphic communication in so unsettled and wild a part of the country. Sergt. W. F. Slater remained in charge of this station until September 15, 1873, when he was relieved by Sergt. William McGillivray. Sergeant Slater has given entire satisfaction while in charge of this station, and has rendered all mail reports with the utmost promptness and as regularly as mail facilities would admit. A plain river gauge has been constructed during the year, and the stage of the river reported in the regular afternoon telegrams.

No reports are received here, and therefore no bulletins are issued.

The thanks of the office are due to the commanding officer and to Captain Kirtland, Seventh United States Infantry, for assistance rendered the observer.

FORT GIBSON, CHEROKEE NATION.

[*Official Number*, 93.]

Latitude	35° 43′
Longitude	95° 16′
Elevation of barometer above sea-level	511 feet.

The office is located in the second story of a building at the corner of two streets running north and west, respectively, in the village of Fort Gibson. The location is the best that could be obtained, and the instruments are well exposed.

The instrument-shelter projects from a window in the office, and is of the authorized form.

The station was opened on the morning of April 1, 1873, by Sergt.

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Thomas A. Taylor, and reports have been received since then with as much regularity as the limited telegraphic facilities would admit. Some delay has been experienced in getting the mail reports from this station, and the observer has been repeatedly reprimanded for his shortcomings in this respect.

No reports are received here, and consequently no bulletins are issued. The local observations are furnished to and published by a weekly paper printed in the English and Cherokee languages.

FORT SULLY, DAKOTA.

[*Official Number*, 83.]

Latitude	44° 39′
Longitude	100° 40′
Elevation of barometer above sea-level	1687.8 feet.

The office at this station remains unchanged. Telegraphic communication has been frequently interrupted during the year, in one instance for nearly a month, owing to the unprotected and poor condition of the line. The telegraph-office was finally abandoned by the Northwestern Telegraph Company, whose property it is, on September 5, 1873, and has not since been re-occupied. Sergt. George Prendor remained in charge until September 29, 1873, when he was relieved by Sergt. William Ramsay, with a view to transfer to a more important station. The station was inspected in July of the present year and found in proper condition. The inspector remarks in his reports: "The books and papers were found in a condition unsurpassed by no other station in neatness and accuracy, and have been so kept under exceedingly difficult circumstances."

A river-gauge has been constructed during the year, and the stage of the water reported in the regular afternoon telegrams. The distance of the river from the fort is nearly a mile and a half, and the observer remarks in his semi-annual report: "The performance of this duty (taking river observations) exposes the observer to a twofold danger—the rifle and arrow of the Indian, or drowning. Examples are too numerous of the grave risks that attend a defenseless white in the thick undergrowth on the confines of the river, and I am the only person who ventures there unarmed." No reports are received here and consequently no bulletins are issued.

The office is indebted to Gen. D. S. Stanley, colonel Twenty-second Infantry, for continued interest and a constant effort to afford all possible facilities to the observer.

The present observer has a sufficient practical knowledge of telegraphy to act as operator in addition to his other duties, and it is expected that the transmission of reports will be resumed at an early date.

GALVESTON, TEXAS.

[*Official Number*, 55.]

Latitude	29° 18′
Longitude	94° 33′
Elevation of barometer above sea-level	40.2 feet.

The location of the office remains unchanged since the date of last report. No reports are received here from other stations, and no maps or bulletins issued. The local observations are furnished the newspa-

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pers, and published by them during the summer season, and the amount of rain-fall and a monthly abstract of the climatology of the station regularly.

Sergt. E. O. C. McInerney remains in charge of the station, and has performed his duties satisfactorily, and rendered all reports promptly and regularly. A series of interesting experiments made by him, in reference to rain-fall at different elevations, has produced unexpected results, as each weekly report has shown a greater amount of rain collected at fifty feet above the ground than at the surface, the gauges used being duplicates of the standard signal-service pattern. Privates J. E. Cook and B. C. Anderson have been called in, successively, for promotion, and passed the required examination. Private William O. Belt was transferred to the station as an assistant April 10, 1873, and died of yellow fever September 18, after a brief illness. He was a young man of excellent character and habits, and had discharged his duties in a conscientious and praiseworthy manner.

In consequence of the danger to which an assistant not acclimated would be exposed at this season of the year, none will be sent to replace Private Belt until later in the season, as the observer is considered fully competent to manage the station alone for a few weeks.

The chairman of the meteorological committee, and the citizens generally, have repeatedly urged the importance to their city of having more reports furnished them from stations to the west and north in the interior of the State. They also desire to receive reports from the Gulf stations to the eastward.

The station was inspected in March of the present year, and found in good condition.

GRAND HAVEN, MICHIGAN.

[*Official Number*, 48.]

Latitude	43° 05
Longitude	86° 15′
Elevation of barometer above sea-level	616.3 feet.

No change has been made in the location of the office during the year. No reports are received here from other stations. The local observations and monthly abstracts of the local weather are occasionally published by the newspapers, but not with sufficient regularity to make them of much service to the public.

The station was inspected in April of the present year and found in fair condition. Several irregularities were discovered and corrected before the inspector left.

Sergt. F. F. Wood remains in charge and is favorably mentioned by the inspector in his report for his sobriety, courtesy, and general behavior.

Sergt. J. H. Garrard was on duty at the station from January 20 to March 11, 1873, during the illness of Sergeant Wood.

The midnight reports are not sent until the succeeding morning, as the telegraph-office is closed at the proper time of sending. The uncertainty of the telegraphic communication also interferes seriously with the prompt transmission of cautionary signal orders, which if sent at night are frequently delayed several hours until the local telegraph-office is opened for business the next day.

Considerable interest is manifested in the service, especially in connection with the cautionary signals, of which thirty-six have been dis-

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played during the year. Of this number twenty-eight are reported as justified at the station.

In reference to several of these signals the observer remarks as follows:

May 12–13, 1873.—The steamer Saginaw left as usual but returned on account of heavy sea. The Chicago and Milwaukee boats are behind time on account of wind and sea.

September 17–18, 1873.—One vessel remained in port on account of signal.

September 24, 1873.—Quite a number of vessels entered the port for shelter during the display of the signal.

The citizens are desirous of receiving reports from the other lake-stations, but with the present telegraphic facilities it would be impracticable to furnish them at the proper hours.

INDIANAPOLIS, INDIANA.

[*Official Number*, 43.]

Latitude	39° 47′
Longitude	86° 06′
Elevation of barometer above sea-level	746.7 feet.

The location of the office remains unchanged since the date of last report, but arrangements have been made to remove it to another part of the same building early in October, in order to obtain better facilities and more space. Reports from thirty-seven other stations are received here in the morning and afternoon, and from seventy-six stations at midnight—the additional ones being copied as they pass between Cincinnati and Chicago. No maps are printed, but during the year four thousand seven hundred and fifty-five bulletins have been issued, and one thousand nine hundred and eighteen press reports furnished for publication.

Three hundred and twenty-seven river-bulletins and one thousand seven hundred and thirty manifold copies of the Synopsis and Probabilities have also been posted.

Sergt. C. F. R. Wappenhans remains in charge, and has given full satisfaction. All reports have been promptly and properly rendered.

Two assistants have been relieved for misconduct during the year. Private W. D. Halliday, the present assistant, has been on duty since February 10, 1873, and is commended by the observer for his steadiness and intelligence. He was in charge of the station alone for one month during the observer's absence, and rendered all reports in proper form and time.

The leading newspapers print the local observations regularly, and also frequent selections from the general reports and the latest Probabilities received.

The observer speaks in high terms of the courtesy of the telegraph officials, by which he has been enabled to perform his duties under the most favorable circumstances.

INDIANOLA, TEXAS.

[*Official Number*, 84.]

Latitude	28° 32′
Longitude	96° 30′
Elevation of barometer above sea-level	25 feet.

The office remains as at last report, in Schultz's building on Main street. No reports are received here from other stations, and the station is therefore one of observation and report only. The local observations and

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monthly abstracts are furnished the only paper published here, and are printed in good form.

Sergt. Edward Lloyd was in charge until March 13, 1873, when he was relieved on account of ill health and succeeded by Sergt. Frank Mansfield, who still remains.

All mail reports have been forwarded regularly and promptly, but the telegraphic ones have been frequently delayed by accidents to the line and the closing of the office at the regular reporting hour.

The midnight reports are uniformly held until the next day and forwarded with the morning report, and both are delayed even then several hours because the telegraph-office does not open until the regular business hours of the place.

In reference to the interest taken in the service the observer remarks as follows:

I have noticed that agriculturists appreciate the service even more than the commercial community. One gentleman remarked to me that it depended wholly upon the signal-service whether the sugar-lands of Texas would ever be fully developed or not. In other words, that these lands never could be worked to advantage without the farmers interested had access to the weather reports.

The station has not been inspected during the year, but the observer reports all instruments and records in good condition.

JACKSONVILLE, FLORIDA.

[*Official Number*, 73.]

Latitude	30° 24′
Longitude	80° 40′
Elevation of barometer above sea-level	22.9 feet.

The location of the office remains unchanged since the date of last report. Reports from five other Gulf stations are received here and published in the regular matter. During the year three thousand and seventy-six bulletins have been issued and four hundred and forty press-reports furnished for publication. The station was inspected in February of the present year and found in fair condition. Sergt. D. A. Daboll was in charge until January 2, 1873, when he was relieved on account of ill health, and succeeded by Sergt. Richard McLaughlin, who still remains and has given satisfaction. All mail-reports have been forwarded promptly and in proper form. Private W. U. Simons still remains on duty as assistant, and has given satisfaction to the observer and to the central office. Considerable interest is manifested in the service here, and much regret is expressed at the inability of the office to furnish reports from a greater number of stations, especially during the winter, when many visitors from the North spend the season in Jacksonville and are naturally anxious to know the state of weather at their homes. Both newspapers published at the station print all reports furnished them in excellent form. Owing to a temporary derangement of the telegraphic facilities the midnight reports from July 1 to August 1 were not forwarded until the next morning, and during this time the 9 o'clock p. m. reports were sent instead.

Four cautionary signals have been displayed during the year, of which three are reported as justified at the station.

The observer makes the following remarks in reference to these displays:

March 23–25, 1873.—Two schooners loaded with lumber delayed going until the gale was over, the captains ascribing the saving of their vessels to the display of the signal.

March 25–26, 1873.—The steamer City Point waited until after the signal was lowered before she left.

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KEOKUK, IOWA.

[*Official Number*, 47.]

Latitude	40° 23′
Longitude	91° 27′
Elevation of barometer above sea-level	584 feet.

No change has been made in the location of the office since last report. Reports from twenty-nine other stations are received here with as much regularity as the imperfect telegraphic facilities will permit, and during the spring and fall reports from all the special river-stations are also received. One thousand seven hundred and ninety-six regular bulletins have been issued during the year. One thousand and ten river-bulletins posted. The newspapers print selections from the river-reports, and also that part of the Probabilities which applies to the West, but decline to use the tabulated reports, and manifest less interest in the service than the press of any other station.

The station was inspected in June of this year, and the instruments found in good condition. Several irregularities were found in the manner of keeping the records, which were corrected before the inspector left the station.

Sergeant Daw was relieved from charge of the station November 22, for neglect of duty in failing to forward his mail reports promptly, and was succeeded by Sergt. James H. Marsh, who still remains, having given general satisfaction.

The assistant on duty at last report was called in for promotion April 14, and passed a satisfactory examination after going through the regular course of instruction at Fort Whipple.

Private Mark Foley is the present assistant, and has performed his duty satisfactorily.

Regular observations have been made daily of the stage of water in the river, and reported by telegraph.

The bench-mark used is at the northeast corner of Old Pilot's Indicator, 1,400 feet above the bridge. The height above low water is 14.183 feet, and above high water 8.95 feet. The measurement is not made from the bed of river.

Depth of water in channel at extreme low water 4½ feet, and at extreme high water 24 feet 9 inches to 25 feet 4 inches.

Considerable interest is manifested by leading citizens in the service, especially by those connected with the river trade.

KEY WEST, FLORIDA.

[*Official Number*, 25.]

Latitude	24° 32′
Longitude	81° 48′
Elevation of barometer above sea-level	17 feet.

No change has been made in the location of the office at this station since last report. Reports from the West India stations are received here and transferred by the observer to Lake City, besides being furnished to the press, with the local observations, weekly. The station was inspected in December, 1872, and the records and instruments found in excellent condition. Sergt. M. J. Shanefelter was in charge until February 18, 1873, when, under authority from the central office, he exchanged stations with Sergt. William Theodovius, then at Punta Rassa. Sergeant Theodovius was in turn relieved July 7, by

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Sergt. B. C. Anderson, who still remains and gives satisfaction by the promptness and regularity with which his reports are rendered.

One assistant has been called in for promotion during the year, and after going through the regular course of instruction at Fort Whipple passed a satisfactory examination. Private E. K. Moore reported as assistant December 23, 1872, and exchanged stations February 18, 1873, with the assistant at Punta Rassa, Private M. M. Lewis, who still remains, and has merited the commendation received from the observer for his faithful discharge of duty. He had entire charge of the station for several weeks previous to Sergeant Anderson's arrival, and made all reports in proper form and time.

KNOXVILLE, TENNESSEE.

[*Official Number*, 42.]

Latitude	35° 56′
Longitude	83° 58′
Elevation of barometer above sea-level	993 feet.

The office at this station still remains in the University building, and affords sufficient facilities for its station-work, although its distance from the telegraph-office is a disadvantage. No rent is paid for the office, and every facility is extended by the faculty to promote the usefulness of the service. No reports are received here from other stations, but nine hundred and thirty-six reports of local observations have been furnished to the press and regularly published. Sergt. John K. Payne remains in charge of the station, and has furnished all reports promptly and satisfactorily. He has no assistant, but gets occasional aid from the students of the university.

The midnight report is usually delayed until the succeeding day on account of the closing of the telegraph-office. The station has not been inspected during the year.

LA CROSSE, WISCONSIN.

[*Official Number*, 87.]

Latitude	43° 48′
Longitude	91° 27′
Elevation of barometer above sea-level	686. 26 feet.

This station was established October 15, 1872, by Sergt. Richard Williams, who still remains in charge and has given satisfaction.

The office is in the business center of the town, at the corner of Second and Main streets, convenient to all important public places. The roof exposure for instruments cannot be excelled at the station. The post-office is two squares distant, the court-house and International Hotel and the Mississippi River are the same distance. The telegraph offices are one square distant.

The instrument-shelter is of the standard model, and projects from a window in the second story.

Reports from other stations are not received here, but the local observations are furnished regularly to the press, and published in good form.

The station was inspected in August of the present year, and the records found in poor condition. The errors were pointed out and corrected by the inspector, and the observer retained upon his recommendation, as he appeared to have erred through ignorance alone.

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Regular river observations have been made each afternoon, and furnished with the usual telegraphic reports.

The zero of gauge is low-water mark of October 1, 1871, and is two feet two and a half inches above the bed of the river. The gauge is attached to one of the piles of the bridge leading to North La Crosse.

Telegraphic reports were suspended from January 10 to April 4, 1873, in accordance with instructions from the central office.

The inspector reports that considerable interest is felt in the service among the citizens of the station.

LAKE CITY, FLORIDA.

[*Official Number*, 24.]

Latitude	30° 13′
Longitude	82° 40′
Elevation of barometer above sea-level	216 feet.

The location of the office at this station remains unchanged since last report. The reports of three regular stations and all of those from the West India stations are transferred here to the observer at Savannah.

No bulletins are published, nor any special local use made of the reports, and as the necessity for a station at this point no longer exists its removal to some more useful location is recommended.

The station was inspected in February of the present year, and instruments and records found in fair condition. The office and instrument-shelter needed repairing, but as there was reason to believe that the station would be broken up at an early date, it was not considered advisable to expend any more money upon it than was absolutely necessary, and the repairs were not made.

Sergt. James O'Dowd was in charge of the station until relieved August 27, 1873, on account of ill-health. He was succeeded on that date by Sergt. A. D. Woolcott, who still remains. Both men have given satisfaction.

Two assistants have been called in for promotion during the year and both passed the required examination, and are now in charge of stations.

One assistant was ordered in for discharge, and was succeeded by Private John A. Cody, who still remains.

But little interest is felt in the service by the inhabitants.

LEAVENWORTH, KANSAS.

[*Official Number*, 52.]

Latitude	39° 19′
Longitude	94″ 58′
Elevation of barometer above sea-level	813.38 feet.

The office has not been moved since last report, and as it is commodious, centrally located, and convenient to the principal business places, no change is recommended.

Reports from other stations are not received here, and the only bulletins issued are those of the local observations, of which six hundred and ninety-three copies have been furnished the press during the year, and published in full by the several newspapers of the city. These papers also publish the monthly abstracts of the local weather, pre-

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pared by the observer, and also the Monthly Weather Review, received from the central office.

Regular river observations are made daily, and reported in the usual manner. The zero of the gauge is fixed at low-water mark in the Missouri, which is about one foot above the bed of the river, although the river bottom changes at each flood.

The station was inspected in July of the present year, and found in good condition. Some irregularities existed in the manner of keeping the records, but they were corrected by the inspector. Sergt. George Boehmer, in charge at the date of last report, was transferred to the central office December 2, 1872, and succeeded by Sergt. George S. Rowley, who still remains, and whose mail reports have been forwarded with regularity. His general management of the station was favorably mentioned by the inspector.

Private E. W. McGann was ordered in for promotion November 1, 1872, and after going through the regular course of instruction at Fort Whipple passed a satisfactory examination, and is now in charge of a station. His successor, Julius F. Beyer, was fatally injured by falling from the office-window to the pavement, while on duty, and died February 8, 1873. He was a man of excellent habits and fine intelligence. The present assistant is private Thomas Jones, who has been on duty in that capacity since March 18, 1873.

The midnight reports from this station are not forwarded until the morning following, as the telegraph-office is closed at the regular time for sending them.

The inspector reports that much interest is felt in the service by the citizens, and a general desire is expressed for the receipt of reports from other stations on the western rivers and in the Territories. With the present telegraph facilities these reports cannot be furnished in a satisfactory manner.

LEXINGTON, KENTUCKY.

[*Official Number*, 90.]

Latitude	38° 06′
Longitude	84° 33′
Elevation of barometer above sea-level	1,083 feet.

The station was established October 1, 1872, by Sergt. W. S. Jewell, who still remains in charge and has given satisfaction. The office is in one of the university buildings, and is furnished free of cost to the Government. Reports are not sent by telegraph, but the seven regular observations are made daily, and forwarded by mail at the end of each week. No reports are received here. The officers of the university have made several urgent requests to be furnished with full reports from Cincinnati once each day, and as the station is one of instruction it is recommended that the request be complied with. The observer is commended by the officers of the university for his general good conduct, intelligence, and attention to duty.

LOUISVILLE, KENTUCKY.

[*Official Number*, 64.]

Latitude	38° 1[illegible]
Longitude	85° 52
Elevation of barometer above sea-level	496 feet.

No change has been made in the location of the office at this station

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since last report. Reports from nineteen regular stations are received here, and also from all the special river stations, when in operation.

During the year three thousand three hundred and eleven bulletins of the regular reports and six hundred and ninety of the river reports have been issued, and seven hundred and fifty-nine reports furnished to the press and published in excellent form. Eight hundred and fifty manifold copies of the Synopsis and Probabilities have also been posted with the bulletins in the most prominent public places.

The leading daily papers publish, in addition to the tabulated reports, the complete local observations, the river reports, weekly chronicle and monthly abstracts and the latest Probabilities received, and manifest in every way a gratifying interest in the welfare of the service.

The station was inspected in March of the present year, and the office, instruments, and records found in good condition. The observer in charge, Sergt. R. E. McGrady, was favorably mentioned by the inspector for his attention to duty and courtesy in furnishing information to applicants. After the visit of the inspector, however, Sergeant McGrady began to neglect his work by failing to transmit the mail reports on time, and at length fell so far behind in this respect that he was ordered to Fort Whipple September 22, 1873, and succeeded by Sergt. Jesse W. Craig, who is now in charge. During the year two assistants have been ordered in for promotion, one of whom has passed the required examination and is now in charge of a station, and the other is going through the regular course of instruction at Fort Whipple. Private Ned Warren, the present assistant, has been on duty since July 29, 1873, and given satisfaction by the manner in which he has discharged his duties.

Regular river observations are made daily in the usual manner, the depth of water being taken from a gauge at the foot of Tenth street, which is used by all river-men and considered reliable.

The zero of this gauge is the sill of the lock of the Louisville and Portland Canal. The bench-mark is the door-sill of house, corner of Tenth and Water streets, and is 28.1 feet above zero. Extreme high water of February 21, 1832, is 41.8 feet above zero.

LYNCHBURGH, VIRGINIA.

[*Official Number*, 44.]

Latitude	37° 30′
Longitude	79° 02′
Elevation of barometer above sea-level	738 feet.

The office was moved September 1, 1873, to No. 135 Main street, in the building of the First National Bank, where all instruments have a much better exposure than previously.

Reports from other stations are not received, and therefore the only bulletins issued are those of the local observations, which are furnished regularly to the local newspapers. These papers also print the latest Probabilities received from Washington through the agency of the Southern Press Association.

The station has not been inspected since last report, and the present condition of the office is therefore unknown, except from the reports of the observer, who states that all instruments are in perfect order.

Sergt. S. B. Murray was relieved from charge of the station January 9, 1873, for neglect of duty in not forwarding his mail reports on

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time. He was succeeded by Sergt. H. U. Jones, who still remains and has been especially prompt in rendering all reports.

There is no assistant at the station, nor is any considered necessary at present, as the work of the observer is limited to making the seven daily observations and recording them.

In reference to the interest manifested by the citizens in the service, the observer remarks as follows in his report for the six months ending June 30, 1873:

Lynchburgh being one of the greatest tobacco-markets in the United States, and the greatest manufacturing city, receives undoubtedly the most positive and definite amount of benefit from the system of weather reports of any city in the Union that is situated in the interior. The manufacturers, after a long and patient comparison of the Probabilities and the weather which actually occurs, have arrived at the conclusion that for practical purposes the Probabilities are "certainties," and make their arrangements about placing tobacco in the open air in accordance therewith, and they are unanimous in their declarations of appreciable good derived directly from the signal-service reports in enabling them to prevent a great loss of labor and material.

MARQUETTE, MICHIGAN.

[*Official Number*, 50.]

Latitude	46° 33′
Longitude	87° 36′
Elevation of barometer above sea-level	666.33 feet.

The office remains at the corner of Spring and Front streets, in the business center of the town, and within one square of the lake, the telegraph-office, and the most important public houses. The location is a good one for the exposure of the instruments. No reports are received here, the station being for observation and report and for the display of cautionary signals only.

The local observations are furnished regularly to the Mining Journal, the only paper published at the station. This paper also prints weekly abstracts of the local weather. The station was inspected in May of the present year, and records and instruments found in good condition.

Sergt. W. H. Clendenon remains in charge, and has rendered all reports promptly and satisfactorily. The inspector reports that he is spoken of in very warm terms of commendation by citizens with whom he has official relations. Arrangements were made for the display of cautionary signals as soon as the telegraphic communication could be relied upon to transmit them promptly; and the first signal was ordered September 26, 1873. Previous to that date several warnings had been sent to the observer whenever danger was anticipated.

There is no assistant at the station. Since the date of last report the telegraphic communication has been greatly improved, and the reports transmitted with greater regularity.

MEMPHIS, TENNESSEE.

[*Official Number*, 62.]

Latitude	35° 07′
Longitude	90° 07′
Elevation of barometer above sea-level	299 feet

No change has been made in the location of the office since last report.

Reports from nineteen regular stations are received here, and also those from the special river-stations when made. During the year, two thousand nine hundred and seventy-two tabulated and one thousand five hundred and seventy-seven river-bulletins have been issued, and

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four hundred and sixty-five press reports furnished for publication. One thousand and fifty-six manifold copies of the Synopsis and Probabilities were made and posted with the bulletins previous to August 25, on which date the printed issue to post-offices was commenced. Fifty-nine offices are supplied with two copies each daily, the total number issued to date being three thousand seven hundred and seventy-six.

The station was inspected in March of the present year, and reported in excellent condition.

Sergt. S. W. Rhode remains in charge, and has rendered all reports promptly and in proper form. His semi-annual reports are especially well prepared.

Privates John D. Sumet and James T. Clements are on duty as assistants, and are both favorably mentioned by the observer for their good conduct and faithful attention to duty. One assistant (Private A. G. Tassin) has been ordered in for promotion during the year, but, receiving a commission as second lieutenant in the Army before completing his course of instruction at Fort Whipple, was not examined.

The following extracts from the semi-annual report of the observer for the period ending June 30, 1873, will give a fair idea of the interest manifested in the service:

As to the use made of the reports received at this station, I have to report that I am often called upon by the railroad and express companies to know the condition of the weather. These companies are often sued for damages to goods from being exposed to the rain and sudden changes in the temperature. It is a very important matter to them to know the condition of the weather while these goods were in their charge. I have always been able to furnish the information these parties desired, the Weekly Weather Chronicle being very useful in this connection. One brickmaker stated to me that he had often saved as high as two and three hundred dollars a day by giving close attention to, and heeding the warnings given in, the Probabilities.

The increase of the river-reports was highly commended by the river-men, and this movement by the Department in their behalf has been duly appreciated by every one connected with the river. The planters along the river also give close attention to the river-reports, as they can now have several days' warning of an overflow.

The cotton-factors of this city also manifest considerable interest, and this office is visited almost daily by cotton-men, desiring information as to the amount of rain-fall, temperature, &c., in the cotton States. The river-men have been very profuse in their encomiums, as the river-reports of the service have been of great value to their interests. The additional river-station shave been very valuable to them, and there is no doubt but that, by the present system, an immense amount of property can be saved to the planters in the Lower Mississippi Valley. The service has gained a fast hold on the people of this city, and there are certain portions of the public that have saved so much by heeding its warnings that they would not know what to do without it.

Regular river observations are made at this station and reported in the usual manner. The gauge used is one constructed by the United States Engineer Corps, as stated in the last annual report.

MILWAUKEE, WISCONSIN.

[*Official Number*, 38.]

Latitude	43° 03′
Longitude	87° 54′
Elevation of barometer above sea-level	661.4 feet.

The office was removed in April to an adjoining room in the same building, but, while centrally located, labors under the disadvantage of being imperfectly heated during the winter months. Efforts will be made to remedy this defect before the cold weather renders the office uncomfortable.

Reports from fifty-seven stations are received here, of which seven are

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transferred to Chicago in addition to their publication at the station in the usual manner.

During the year one thousand eight hundred and fifty-three maps and three thousand five hundred and sixty bulletins have been issued, and four hundred and fifty-five press-reports furnished for publication.

Eight hundred and forty-nine manifold copies of the Synopsis and Probabilities have also been made and posted with the bulletins in the most prominent public places.

The station was inspected in April of the present year, and the records and instruments found in good condition.

Sergt. D. H. Sackett was relieved March 20, 1873, on account of a personal difficulty with the telegraph-operators, in which he does not appear to have been the most at fault. He was succeeded by Sergt. H. M. Ludwig, who still remains in charge and has given full satisfaction by the able manner in which he has discharged his duties.

One assistant has been transferred to the central office during the year. His successor, Private A. Dunhauser, was ordered there April 1, 1873, and still remains. His conduct has been favorably mentioned by the observer.

Thirty-six cautionary signals have been displayed during the year, of which twenty-four are reported as justified at the station.

In reference to these displays the observer remarks as follows:

October 15–16, 1872.—High northerly winds prevailed on the lake, and vessels put back to port and remained until the signal was lowered.

October 29–31, 1872.—Sailing-vessels remained in port; steamers went out, but returned and remained in port until the gale abated.

November 7, 1872.—Heavy gale on the lake.

November 13–14, 1872.—Vessels that were out put back to port and waited until the signal was lowered.

November 25, 1872.—The vessels remained in port.

November 28–30, 1872.—Vessels remained in port. The majority are laid up for the winter.

November 30–*December* 2, 1872.—Wind, accompanied by snow. One vessel disobeyed the signal and went out, but met with a heavy sea which compelled her to put back to port.

December 2–3, 1872.—No vessels going out; all laid up for the winter.

April 7–10, 1873.—No sailing-vessels left port. No casualties reported.

September 17–18, 1873.—Very few departures during the display of the signal, and damage to shipping reported. A rough sea experienced by Milwaukee-bound vessels.

September 24–25, 1873.—Vessels remained in port until the wind veered to the southwest, of which several took advantage and cleared. The bark Unadilla lost her mizzen-topmast by rough weather on Lake Michigan on Wednesday, and the schooner W. J. Whaling foundered at Grand Haven and is a total loss.

September 26–27, 1873.—Vessels remained in port during the continuance of southeast wind and cleared with the southwest.

The leading newspapers print the tabulated reports, the weekly and monthly abstracts, and the latest Probabilities received up to the time of going to press. The inspector reports that the citizens display a marked interest in the service. In reference to this subject the observer remarks:

Farmers and visitors from the surrounding country, whom I frequently meet, all speak with the highest praise of the benefits derived from the reports, and especially the Probabilities, which have been unusually correct for this region. Numerous vessel-owners and others interested in shipping study the Probabilities for anticipated changes in the direction of the wind, and accordingly regulate their vessels for early departure or otherwise, as the case may be. Cautionary signals, when up, are also closely watched, and cases have come under my personal notice where vessels delayed their departure during the display of the signals.

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MOBILE, ALABAMA.

[*Official Number*, 27.]

Latitude	30° 42′
Longitude	88° 11′
Elevation of barometer above sea-level	41 feet

No change has been made in the location of the office at this station since the date of last report. No reports from other stations are received here, but during the year one thousand seven hundred and twenty-three bulletins and one thousand four hundred and sixty-six press-reports of local observations have been issued by the observer, in addition to five hundred and forty-seven manifold copies of the Synopsis and Probabilities made and posted with the bulletins. The station was inspected in February of the present year, and instruments and records found in good condition.

Sergt. D. O'Donoghue remains in charge, and has given entire satisfaction. All reports have been rendered promptly and in excellent form. Two assistants have been called in for promotion during the year, one of whom has passed the required examination, and the other is still under instruction. Private C. A. Smith is the present assistant, and is commended by the observer for his attention to duty.

Thirteen cautionary signals were ordered during the year, of which five are reported as justified at the station. Several of these signals were delayed in transmission until their time of usefulness had passed.

In reference to the display of April 1, 1873, the observer remarks: "A few vessels not taking warning were driven from their moorings."

The inspector reports that the citizens are very much interested in the service, and are anxious to have reports from other stations.

The secretary of the cotton-exchange made a most earnest request through him, that the cotton-exchange be furnished with reports from the cotton States during the cotton-growing season at least. He states that these reports are of the utmost value to cotton-merchants, as they show the actual state of the weather at the points where stations are located, and upon this data the business men rely in a great measure in making their calculations as to the probable value of the crop.

MONTGOMERY, ALABAMA.

[*Official Number*, 26.]

Latitude	32° 22′
Longitude	86° 23′
Elevation of barometer above sea-level	249.9 feet.

The office at this station remains at 49 Market street, in the business portion of the city. It was inspected in February of the present year, and found in a fair condition. Upon the recommendation of the inspector, the instrument-shelter has been remodeled and painted, to procure a better exposure for the instruments. It is also intended to remove the office to a more suitable building, but as yet none has been found.

Sergt. George A. Clum remains in charge, and has forwarded his reports promptly and in good shape; and as no reports are received here from other stations, he has been without an assistant until September 11, 1873, when the station was made one of the southern centers for the distribution of the daily Synopsis and Probabilities to post-offices, and Private H. E. Armstrong, a printer, ordered here as assistant.

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Commencing September 20, 1873, the midnight Synopsis and Probabilities are received by telegraph and are printed, and two copies are mailed daily to forty-five post-offices.

The press has been furnished with and published the daily local observations and the monthly summaries.

MOUNT WASHINGTON, NEW HAMPSHIRE.

[*Official Number*, 46.]

Latitude	40° 16′ 25″
Longitude	71° 16′ 26″
Elevation of barometer above sea-level	6285.4 feet.

The office at this station was located during last winter in the depot of the Mount Washington Railway Company, on the summit, and during the summer was moved from one building to another, belonging to the same company, until it was finally settled permanently, in September, in a comfortable and roomy house built for this especial purpose, at the expense of the central office, by Mr. Walter Aiken, to whom the office is indebted for many courtesies shown the observers, and for valuable assistance rendered on many occasions. The station was inspected in December, 1872, and an officer is now on his way to make another inspection. The station was found in excellent condition when last visited, all instruments and records being in good working order, and the men comfortably situated. Sergt. A. R. Thornett remains in charge, and has given entire satisfaction by the regularity, neatness, and promptness with which all of his reports have been forwarded. He has sent most of his own telegraph reports during the year, having learned to operate with sufficient skill. Sergt. William Line also remains on the station, and is warmly commended by the observer in charge for his ability and zealous attention to duty. Private William Ramsay was ordered in for promotion July 1, 1873, and, after the usual instruction, passed his examination, and is now in charge of a station. An extra assistant was sent to the station during the time the special observations were made, of which a separate report has already been submitted to you. He was recalled August 4, 1873, and succeeded by Private F. De Rosher, who performs his duties satisfactorily. A great amount of extra labor was thrown upon Sergeant Thornett in connection with the establishment of the special stations on the side of the mountain, and he is entitled to praise for the faithful and intelligent manner in which he performed it.

The following estimate of provisions required for the supply of three persons for eight months is given as the result of the observer's experience, and as a guide for future occupants of the station:

3 barrels flour.
1 bushel corn-meal.
5 dozen 3-pound cans tomatoes.
8 dozen 1-pound cans milk.
45 pounds Java coffee.
1 pound mustard.
25 pounds baking-powder.
1 keg vinegar.
3 kits mackerel.
250 pounds fresh beef.
2 barrels onions.
60 pounds butter.
6 pounds tea.
1 box table-salt.
50 pounds dried apples.
2 bushels beans.
10 bars extra soap.
1½ pounds assorted spices.
1 barrel ship-bread.
1 barrel plate-beef.
5 dozen 2-pound cans corn.
2 dozen 3-pound cans beef.
1 barrel white sugar.
1 pound pepper.
1 keg standard sirup.
2 boxes raisins.
60 pounds corn-starch.
25 bushels potatoes.
3 gallons English pickles.
50 pounds ham.
25 pounds rice.
3 boxes herrings.
50 pounds dried peaches.
3 bars castile soap.
150 pounds fresh pork.

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A few cans jelly, chickens, &c., for use in case of sickness; some tobacco, and a few herbs, such as sage, &c. Some unknown ladies have kindly given the observer about one hundred volumes of the latest novels and other interesting publications, to amuse the men on station during their long and dreary winter isolation. It is to be regretted that the names of the generous donors are unknown, in order that their thoughtful kindness might be suitably acknowledged.

As in previous years the thanks of the office are due to Mr. Walter Aiken and Capt. J. W. Dodge, of the Mount Washington Railroad Company, and to Mr. Benjamin Kilburn, of Littleton, for their continued assistance in many ways.

The line has been kept in good repair from base to summit during the year, and the interruptions that have occurred in communication have been caused at points beyond the control of the observer.

MOUNT WASHINGTON, NEW HAMPSHIRE.

[*Base.*]

Elevation of barometer above sea-level..... 2,898.3 feet.

This station was opened May 1, and observations made regularly until June 30, 1873, in connection with the summit and other stations. A detailed report of their observations has been already submitted. Sergt. Robert Seyboth was in charge of the station, and had two assistants. All the men were faithful in the discharge of their duties, and the full records were brought to the central office in excellent shape and condition. One of the assistants (Private William Seely) was fatally injured, June 28, by falling from the railway trestle-work, and died at Littleton, to which place he had been removed for medical treatment.

He was an honest and faithful man, and his loss was greatly deplored by his comrades. A full account of the accident will be found in the journal of Sergeant Seyboth for June 28, 1873, given in the special report already referred to.

MOUNT WASHINGTON, NEW HAMPSHIRE.

[*Station No.* 2.]

Elevation of barometer above sea-level..... 5,553.3 feet.

This station was opened by Sergt Edward Lloyd, assisted by Privates A. L. Bowie and G. H. Crane, June 1, and discontinued June 30, 1873.

It was located in a railway-car, furnished through the courtesy of the railway company, and which answered the purpose admirably, except during the prevalence of high winds, when it was shaken so violently that the mercury in the barometer oscillated far beyond its normal range, and caused the discrepancies that will be occasionally noticed in the readings of this station. All the records were brought in to the central office in good shape, and will be found in the detailed report of these special observations.

MOUNT WASHINGTON, NEW HAMPSHIRE.

[*Station No.* 3.]

Elevation of barometer above sea-level ..... 4,058.7 feet.

This station was located in the Waumbeck House, and opened June 1 by Sergt. D. H. Sackett and Privates C. R. Daw and J. A. Barwick.

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It was broken up June 30, 1873, in common with the other special stations. The records were brought into the central office in good shape, and are given in the detailed report of these special observations.

MOUNT MITCHELL, NORTH CAROLINA.

[*Summit.*]

Latitude	35° 48
Longitude	82° 10′
Elevation of barometer above sea-level	6,691 feet.

This station was established by Sergt. W. E. Smith, and observations began May 11, 1873, and were continued until September 6, as set forth in the special report already submitted to you.

The men labored under many difficulties, and two of them were unfitted for duty a part of the time on account of sickness brought on by exposure.

One of these men, Sergt. W. A. Chapman, was not able to travel when the station was broken up, and has not yet reported at his proper post.

The records of the station were kept in a neat manner, and no observations were omitted.

MOUNT MITCHELL, NORTH CAROLINA.

[*Base.*]

Elevation of barometer above sea-level	2,560 feet.

This station was established by Sergt. D. H. Sackett to be worked in connection with the summit station, with which regular communication was maintained by signal. The first observations were made August 6, and continued until September 6, when the station was broken up and the party returned to Washington.

A detailed account of the work done will be found in the special report already submitted to you.

All observations were made properly and the records kept neatly and correctly.

MORGANTOWN, WEST VIRGINIA.

[*Official Number*, 92.]

Latitude	39° 40′
Longitude	79° 55′
Elevation of barometer above sea-level	991.23 feet.

The office at this station was located on the second floor of the West Virginia University building until August 1, 1873, when a more suitable and convenient office on the third floor was kindly provided by the president of the university. The roof instruments are well exposed; the instrument-shelter is of the authorized pattern, and projects from a window facing 26° east of north.

The office is furnished by the university free of cost.

Sergt. Charles R. Daw opened the station January 28, 1873, but neglecting his work he was relieved for neglect of duty and reduced to the ranks. Sergt. Thomas L. Watson succeeded him in charge of the station April 22, 1873.

This man also failed to attend to his work properly, and upon the rec

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ommendation of the inspecting officer, who visited the station in August of the present year and found it in a neglected condition, was at once relieved and reduced to the ranks. Sergt. J. D. M. Fee took charge August 25, 1873, and still remains and gives satisfaction.

This station being one of observation only, no reports are sent by telegraph, except occasional mid-day barometrical reports, and since May 3, 1873, also one report of the stage of the water at 3 p. m. daily.

The river-gauge used at this station rests upon the bed of the river, and the reports, consequently, indicate the exact depth of water in the channel.

No reports are received here from other points, and consequently no maps or bulletins are issued. The monthly summaries are furnished to and published by the Morgantown Post, a weekly paper.

The station is highly valued by all the officers of the university, and there are reasons to believe that the present observer will extend his sphere of usefulness.

The office is indebted to Dr. Alexander Martin, the president of the university, for valuable aid rendered in connection with the station.

NASHVILLE, TENNESSEE.

[*Official Number*, 63.]

Latitude	36° 11′
Longitude	86° 53′
Elevation of barometer above sea-level	504 feet.

No change has been made in the location of the office at this station since the date of last report, nor is any considered necessary, as it is in the business center of the city, and within easy reach of the telegraph-offices. Reports from nineteen regular stations are received here, besides all those made from the special river-stations. During the year, three thousand three hundred and seventy-two tabulated bulletins and one thousand and seventy-three river-bulletins have been issued, and two hundred and eight reports furnished on the regular form to the press for publication. The full local observations have also been constantly given to the press, in addition to a daily abstract of the weather at the several stations from which reports are received.

This abstract is prepared by the observer, and has been received with marked favor. This station having been selected as one of the centers of distribution for the Synopsis and Probabilities to post-offices, the regular issue to ninety-six offices commenced September 4, 1873, and has been continued regularly since that date. The station was inspected in March of the present year, and found in excellent condition. Sergt. W. S. Kauffman was in charge at the time, and the inspector commended him in warm terms for intelligence and zeal. He was transferred May 1, 1873, to Chicago, and Sergt. A. C. Ford from that station took his place. The duties have been well and faithfully performed by Sergeant Ford.

Two assistants have been called in for promotion during the year, both of whom passed the required examination after going through the usual course of instruction at Fort Whipple.

Privates Stansell and O'Brien are the present assistants, the latter being a printer, sent to assist in getting out the post-office bulletins. Both men are favorably reported upon by the observer for their attention to duty. The citizens manifest a gratifying interest in the service, especially that part of it connected with the river-reports. The observer

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has been called upon several times to furnish the records of his office as evidence in lawsuits of importance.

Regular river observations are made at this station, and reported in the usual manner. The river-gauge remains on the southern face of the northern draw-pier of the Louisville and Nashville Railroad bridge, and the zero of the gauge corresponds to extreme low water in the Cumberland River. Referring to these reports, the observer remarks as follows in his journal for June, 1873:

In conversation with the president of the board of trade and other business men of the city, the observer learned that the river-reports of the signal-service were doing a great deal of good with the shippers of the place. A conversation had with the secretary of the board, and a large tobacco-dealer, is submitted entire.

Question by observer. Do you think that the weather-reports of the signal-service are of any local or immediate benefit to this community?

Answer. O, yes, a very great benefit; for instance, I am in the tobacco business extensively, and to me the river-reports are particularly valuable, and so to others in like pursuits. If we want to ship freight by water, we can tell before it leaves whether it can go through or not, without reshipping, knowing the draught of the boat on which we load and the stage of water in the rivers we intend to run her in; nothing is easier. This, too, makes a difference in insurance rates in favor of the shipper, the companies charging higher rates if the cargo is to be reshipped, for they say, "we don't know what kind of a boat you will transfer to," and the risk is greater.

Observer. Have the Probabilities ever attracted your attention?

Answer. I watch them like a hawk. I have also a farm about three miles from the city, and have utilized these predictions in carrying on my farm. I cut hay, plant corn, harvest, &c., when the indications are favorable by the reports.

NEW LONDON, CONNECTICUT.

[*Official Number*, 14.]

Latitude	41° 22
Longitude	72° 9
Elevation of barometer above sea-level	24.6 feet.

No change has as yet been made in the location of the office, but a removal to a more suitable building is in contemplation.

Sergt. C. E. Brinsmade, who was in charge at the date of last report, was relieved and reduced to the ranks on December 2, 1872, for absenting himself from the station without leave. He was succeeded by Sergt. Timothy O'Neill, who still remains in charge and has rendered his reports in good shape and given satisfaction.

Private Mark Foley, who was on duty at the date of last report, was ordered in for promotion January 21, 1873, and was succeeded by Private C. J. Costello, who remains, and is reported attentive to duty at present, although inclined to show himself indifferent when first ordered here.

Reports are received here from twenty-four other stations, and during the year two thousand nine hundred and thirty-four bulletins and one thousand and ninety-two copies of the Synopsis and Probabilities have been posted, and one hundred and fifty-one reports furnished the press.

Thirty-nine cautionary signals have been displayed during the year, twenty-seven of which are reported as justified at the station.

The following are some extracts from the observer's remarks upon incidents connected therewith:

January 5–7, 1873.—No damage to vessels, all remaining in port except one, which sailed about an hour before the signal was hoisted, and returned on the 7th dismasted and rigging all gone.

February 7–8, 1873.—No injury to vessels, all remaining in port.

March 10–11, 1873.—No injury to vessels, all having taken shelter in port when the cautionary signal was hoisted.

The interest manifested in the service at this station remains unbaated.

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NEW ORLEANS, LOUISIANA.

[*Official Number*, 28.]

Latitude	29° 58′
Longitude	90° 07′
Elevation of barometer above sea-level	55.81 feet.

The only change made in the office at this station since last report has been its removal to another room on the same floor, which did not affect the elevation of the instruments. Reports from twenty-one regular stations are received here, in addition to those from all the special river-stations. The reports from Shreveport, Indianola, and Galveston are transferred to Cincinnati as received.

Five thousand five hundred and seventy-three regular, and three thousand four hundred and fifty-one river-bulletins have been issued during the year. Thirty post-offices have been regularly supplied with the printed midnight Synopsis and Probabilities since September 15, 1873.

The leading papers print the river-reports, the monthly abstracts of local weather and the latest Probabilities received through the agency of the Associated Press, with occasional selections from the tabulated reports. The station was inspected in February of the present year and the office found in a very unclean and disorderly condition. The instruments and records were in good order, however, and all reports had been properly made, and the unfurnished state of the office-room appeared to be the principal cause of the disorder noted. The observer was not recalled. Since the removal of the office no complaint has been made.

Sergt. Frank Mansfield was in charge until March 7, 1873, when he was transferred to Indianola, and succeeded by Sergt. Nelson Gorom, who still remains, and has given satisfaction by the promptness and regularity with which all reports have been rendered.

Private D. C. Ralston, the assistant at last report, was ordered in for promotion March 14, 1873, and passed a satisfactory examination after going through the regular course of instruction. Three assistants are now on duty at the station, one of whom is a printer, charged with the issue of post-office bulletins. Two of them are favorably reported upon by the observer, but the third man has only been on this station a few days, and his capacity is therefore unknown.

Regular river-observations are made here and reported in the usual manner. The gauge used is one put up by the city engineer as stated in last year's report.

The bench-mark is high-water mark of 1871, (and is marked on the city tide-gauge,) at which the zero of gauge (from which all river-measurements are made) is placed. From this point to the bottom of the river is approximately 178 feet. The zero is 15 feet above sea-level and 10.5 feet below the city datum-line.

Merchants and others interested in shipping take a lively interest in the reports, and express an earnest desire to have more of them than are received at present, especially from the cotton-growing States.

Twelve cautionary signals have been displayed here during the year, of which five are reported as justified at the station.

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NEW YORK CITY.

[*Official Number*, 15.]

Latitude	40° 42′ 43″
Longitude	74° 00′ 03″
Elevation of barometer above sea-level	165.60 feet.

The only change made in the office at this station during the year has been its removal to two rooms on a lower floor of the Equitable building. These rooms are the same size as those previously occupied, and are more easily reached. Reports from all stations are received here and are transferred to the several circuits over which they are distributed. The transfer requires prompt action and correct judgment on the part of the observer, especially when—as frequently happens—some of the telegraph lines are broken. This duty has been performed by him in a generally satisfactory manner. During the year forty-one thousand six hundred and thirty-six maps, containing the full midnight reports, have been printed and ready for distribution by daybreak daily, and five thousand nine hundred and seventy-seven bulletins have been issued in the regular manner. The issue of printed copies of the Synopsis and Probabilities to six hundred and seven offices was commenced February 25, 1873, and since that date two hundred and thirty-eight thousand four hundred and twenty-eight copies have been sent. These bulletins must be in the post-office by 5 o'clock a. m., daily, and the promptness and regularity with which they have been delivered shows the duty to have been well performed by all engaged upon it. The station was inspected in January of the present year and found in good condition. Sergt. C. R. Estabrook remains in charge, and has given entire satisfaction by his management of the station. Sergt. M. F. Tighe also remains as the senior assistant, and is highly commended by the observer for his close attention to duty. There are four other assistants on duty, of whom two are printers, and all are worked to their full capacity in getting off the large daily issue of publications. An additional printer is furnished by the Equitable Insurance Company to assist in getting out the maps, and that company also furnishes a messenger to distribute a portion of them. All the present assistants are favorably mentioned by the observer. One man was relieved during the year for misconduct at this station and one for discharge.

Thirty-nine cautionary signals have been displayed here during the year, of which twenty are reported as fully, and one partly, justified at the station. Much complaint is made by sailors of the want of brilliancy of the signal-light, which is not distinguishable from the bay, and is therefore practically useless. Arrangements are making to supply the station with a conspicuous light that will be easily visible at a distance of three miles or more.

In reference to the display of signals the observer remarks as follows:

January 5–6, 1873.—Owing to the signals having become loaded with ice, thus endangering the safety of the people in the streets below, they were loosened at 3 p. m., and again raised at sunset.

January 23–24, 1873.—Three coasting vessels known to have remained in the harbor on account of the warning.

February 7–8, 1873.—A large number of lighters were observed to seek safe positions in the harbor in advance of the gale.

NORFOLK, VIRGINIA.

[*Official Number*, 30.]

Latitude	36° 51
Longitude	76° 19.
Elevation of barometer above sea-level	55.52 feet

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The location of the office remains unchanged. Sergt. James E. Magruder, who was in charge at the date of last report, was relieved February 18, 1873, for misconduct, and subsequently discharged the service. His successor, Sergt. E. W. McGann, remains in charge, and has given entire satisfaction. The station was inspected in February of the present year, and upon the recommendation of the inspecting officer the above-mentioned change in the observers was made.

Private E. B. Robbins, who was on duty here as assistant at the date of last report, was called in for promotion and succeeded by Private E. T. Carvalho, who still remains, and has also given satisfaction.

No reports have been received here during the present year, and no maps and bulletins are issued. The leading dailies, however, publish the monthly summaries and the Probabilities. Thirty cautionary signals have been displayed, and thirteen are reported fully justified and six partly so.

The observer remarks as follows on some of these signals:

October 23–26, 1872.—No injury known to have resulted to commercial or other interests. The rain-fall during the storm amounted to 7.47 inches.

March 3–5, 1873.—No vessels left port during the display of the signal. Many were anxious to leave, but did not do so until two hours after the signal was lowered.

March 11, 1873.—No vessels left port during the display of the signal.

March 15–17, 1873.—No injury known to have been done.

March 18–19, 1873.—No injury known to have been done to shipping.

March 19–22, 1873.—A heavy gale which lasted one hour, during which considerable damage was done to several vessels in port. One life was lost by a schooner being thrown on her beam-ends. A number of vessels remained in port until the signal was lowered.

April 16–17, 1873.—No vessels left port. One steamer, the N. P. Banks, attempted to leave but was compelled to put back.

April 22–24, 1873.—A heavy sea outside. Ten vessels remained in the roads until the signal was lowered.

September 19–20, 1873.—No boats left during the display of the signal. The steamer N. P. Banks, attempting to leave port, was compelled to put back on account of high sea.

NEW HAVEN, CONNECTICUT.

[*Official Number*, 96.]

Latitude	41° 17′
Longitude	72° 57′
Elevation of barometer above sea-level	107.1 feet.

The office is located in the upper story of the new insurance building, 368 Chapel street, a six-story structure, and affords an excellent exposure for all the instruments. It stands in the business center of the city, and is within a short distance of the post and telegraph offices. The instrument-shelter is of the authorized form, and projects from a window facing north.

The roof-instruments are located on the tower-deck, at an elevation of one hundred and twenty-seven feet above the curb. In the center of the deck stands the flag-staff for the display of cautionary signals, and from its height (one hundred and fifty-seven feet above the ground) can be easily seen from all parts of the harbor.

The rent paid for this office is $18 per month, and the thanks of the office are due to the members of the New Haven Chamber of Commerce for their valuable aid rendered this office in procuring so favorable a location.

Sergt. William Black opened the station on December 10, 1872. It being one of observation and for the display of cautionary signals only, no reports are sent to the central office by telegraph, except oc-

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casional mid-day reports, in accordance with instructions on this subject. The regular number of daily observations are, however, made here, and transmitted weekly by mail. They have all been rendered promptly and in good shape.

The station was inspected in January of the present year, and reported in good condition.

No reports being received here, there are no bulletins or maps issued, and the local observations and monthly summaries only are furnished to and published by the press.

The first cautionary signal was displayed on March 8, 1873, and seventeen have been ordered since, eleven of which have been reported as justified at the station, and two partly so.

The following are some extracts from the observer's remarks upon these signals:

March 24–27, 1873.—The signal was justified, and gave general satisfaction by the prediction, so far in advance, of the two consecutive days' rain, sleet, &c., and the subsequent northwesterly gale. Several instances of benefit reported.

April 16–18, 1873.—One schooner heeded the signal, and avoided rough weather.

Much interest is manifested in the service by the shipping interests of the place and vicinity, and frequent applications have been received from these quarters for telegraphic-reports from other points.

The observer also makes the following remarks in his semi-annual report for July 1, 1873:

The press-reports furnished by the central office are published in excellent form, and held in high esteem. The telegraph-operators are required to hold open at night, after the hours of regular business, in order to get the latest Probabilities for publication in the morning newspapers. One editor reports that the country circulation of his paper has been greatly increased during the past spring by the accuracy of the published weather information.

NORTH POLAR EXPEDITION.

Sergt. Frederick Meyer, the observer sent with this expedition, returned to Washington early in June of the present year without records or instruments, having lost everything at the time of his separation from the vessel, as described in his special report already submitted. He was fortunate, however, in retaining note-books containing important topographical data, which have enabled him to chart the Arctic regions to a point farther north than any before reached by explorers.

OMAHA, NEBRASKA.

[*Official Number*, 67.]

Latitude	41° 16′
Longitude	96° 00′
Elevation of barometer above sea-level	1,045.69 feet.

The office was removed November 29, 1872, to the corner of Thirteenth and Farnam streets, where it still remains. It is centrally located and convenient to all the principal public places, and the roof exposure for instruments is as good as can be obtained in the city. The instrument-shelter is of the standard pattern and projects from a window facing the north. Reports from nine other stations are received here irregularly and furnished to the press. During the year five thousand one hundred and eighty-eight bulletins have been issued. The monthly abstracts are published regularly by the local papers, and also by several papers in the interior. The station was inspected in the latter part of July of this

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year and found in such a disorganized condition that the observer was immediately relieved and, upon the recommendation of the inspector, reduced to the ranks and his place filled August 13, 1873, by Sergt. Thomas Cleary, who has rendered all reports promptly and in proper form. One assistant has been ordered in for promotion during the year and passed the usual examination in a satisfactory manner. Private John McCann is the present assistant, and has performed his duties faithfully while on the station.

Regular river observations are made daily and reported in the usual manner. The gauge used is attached to a pier of the Union Pacific Railroad bridge and its zero is the low-water mark of 1867. The high-water mark of the same year is 19 feet above zero of gauge.

OSWEGO, NEW YORK.

[*Official Number*, 31.]

Latitude	42° 28′
Longitude	76° 35′
Elevation of barometer above sea-level	299 feet.

No change has been made in the location of the office at this station since its establishment, nor is any considered necessary. Reports from fifty-five stations are received here and published in the usual manner.

During the year, two thousand seven hundred and three maps and three thousand two hundred and twelve bulletins have been issued, and five hundred and eighty press-reports furnished for publication, in addition to the full local observations.

The station was inspected in February of the present year, and found in excellent condition. Sergt. B. F. Hough remains in charge, and has forwarded all reports promptly and satisfactorily. The inspector reports that he is "an extremely zealous, energetic, courteous, and effective man."

The self-registering wind-vane, constructed by the observer and referred to in the last annual report, continues to work satisfactorily.

Two assistants have been called in, successively, from this station during the year for promotion, and after receiving the usual instruction passed their examination. Private E. Bird is the present assistant, and gives satisfaction.

Twenty-three cautionary signals have been displayed, of which eleven are reported as justified at the station. In reference to these signals, the observer remarks as follows:

November 7–8, 1872.—A number of vessels were kept in the harbor by the display of the signal, and were benefited thereby.

November 13–15, 1873.—Many vessels remained in port that would otherwise have been caught out, had it not been for the display of the cautionary signal—this I learn from officers of vessels.

November 27–28, 1872.—No damage reported.

November 29–*December* 1, 1872.—No injury is known to have resulted to commercial interests.

The two daily newspapers at the station publish selections from the tabulated reports, all the local observations, the monthly abstracts of the local weather and the latest Probabilities received.

A permanent interest in the service is manifested by the leading citizens. In reference to this subject, the observer remarks as follows:

The citizens manifested the usual amount of interest in the weather reports. Those most interested are the contractors, builders, shipping and commercial men, though the mariners, as a class, have derived the greatest benefits. I have the names of some who have told me that, by means of the weather-reports and information obtained

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from this office, they have made one or two trips more than other vessels sailing from the same port. At the close of navigation last fall, when the insurance rates were high, captains and owners of vessels visited the office, watching their chance to sail, without insuring cargo or vessel. One man in particular, the owner of a propeller, came regularly for two or three days, and made his trip to Hamilton, Ontario, without insuring, which was a saving to him of $350.

PEMBINA, DAKOTA.

[*Official Number*, 86.]

Latitude	49° 00′
Longitude	97° 05′
Elevation of barometer above sea-level	790 feet.

The office is located in a one-story building, about two hundred yards from Fort Pembina. The instrument-shelter projects from a north window and is of the authorized pattern. There being a scarcity of houses in this country, the location is the best obtainable. Sergt. Alfred Brimer opened this station, but was subsequently discharged the service, and was succeeded by Sergt. George McDonald, who commenced taking observations November 1, 1872. This man proved to be of intemperate habits and neglected his work, and a request was subsequently sent to the commanding officer at Fort Pembina to place him under arrest and prefer charges against him for drunkenness and neglect of duty. This was done and he was tried before a general court-martial convened at Fort Pembina, and by the sentence of the court dishonorably discharged the service of the United States May 14, 1873. An examination of the records shows that he had failed to take seven observations in December, 1872, and forty-four in January, 1873.

Sergt. Sidney Powell was ordered to this station January 30, 1873, and Sergeant McDonald being in confinement, and the new observer taken ill shortly after his arrival, there were one hundred and fifty-three observations missed during the following month before he recovered.

The station was inspected in May of the present year and found in a fair condition. No reports are received here, and consequently no maps or bulletins are issued.

Much irregularity has been experienced in the transmission of reports by telegraph on account of the unprotected and exposed condition of the line. The office is indebted to Lieut. John Bannister, Twentieth Infantry, who has acted as telegraph-operator, while stationed at Fort Pembina, for valuable assistance rendered the observer. Upon the recommendation of the inspector, the office was furnished with a complete set of telegraph-instruments to enable the observer to send his reports himself in case of emergency. There is no assistant at this station, and none is considered necessary.

PHILADELPHIA, PENNSYLVANIA.

[*Official Number*, 17.]

Latitude	39° 57′
Longitude	75° 10
Elevation of barometer above sea-level	71.12 feet.

No change has been made in the location of the office since the date of last report, but through the courtesy of the officers of the chamber of commerce an additional room has been furnished free of expense to the Government, which adds greatly to the comfort of the observers and to the facilities for performing their work.

A serious objection to the present office consists in the want of proper

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means of heating the rooms during that portion of the day when it is not occupied for business purposes, as there are no facilities for putting up a stove in any one of the office-rooms. Unless this difficulty is overcome before the approach of cold weather, it will be necessary to remove to some more favorable locality.

Reports from all stations are received and published here in the usual manner. The maps issued are printed from the midnight reports and are ready for distribution by daylight.

The members of the meteorological committee of the chamber of commerce assist in distributing the maps, and a wider circulation is thereby given them than could be attained by the force of the office alone.

During the year twenty-four thousand two hundred and sixty-seven maps and five thousand six hundred and seventy-nine regular bulletins have been issued.

Two hundred and eighty-one press-reports and one hundred and eight river-bulletins have been furnished for publication, and one thousand and twenty-four manifold copies of the Synopsis and Probabilities posted with the bulletins.

The station was inspected in January of the present year and found in good condition so far as the instruments and records were concerned.

Sergt. W. T. Boyd remains in charge, and has performed all his duties in an unusually able and intelligent manner, and bears an excellent reputation among the business men with whom he has official relations.

Eight assistants have been relieved in succession from this station during the year, three of whom were ordered in for promotion, four for misconduct, and one transferred to another station. There are three assistants now on duty, and all are worked to their full capacity, and are commended by the observer for attention to duty.

In reference to the interest taken in the service the observer remarks as follows in his semi-annual report for the period ending June 30, 1873:

It is unnecessary to say very much on this subject. The service speaks for itself. Its advancement and continued progress in the well-wishes of all our prominent business men is a well-known fact. As a prominent member of the board of trade remarked: "Stop this service for one month and its necessity would become so apparent to the public interests that any favor they might ask Congress would gladly grant." Many instances might be given where there have been large sums of money at stake, and difficult questions have arisen which have been solved by the signal-service. For want of time I will mention but one. A vessel, with cargo fully insured in this city, was lost in a storm at sea, about half way between New York and New London, Conn., some time in July, 1872. The owners claimed the insurance for the full amount, vessel and cargo. Some doubt seems to have arisen about the affair, and more especially as to the wind and weather in that locality at the time the loss occurred. Mr. Steelman, secretary of the vessel-owners' association, called at the observer's office for information as to the state of weather, velocity and direction of wind at New York and New London at midnight of July 24, 1872. This happened at the time the reports were suspended, and no data could be furnished by this office. The observer addressed a communication to the observers in New York and New London, and the reports, as received from those stations, were taken as evidence in court, and the case was decided in favor of the insurance company, who proved that on the night in question there was only a fresh wind and clear weather at both of those stations, and it was very improbable for a storm to have occurred at so short a distance from the land at that time. It was ascertained afterward that the vessel was scuttled and sunk purposely to get the large insurance. This is but one of the many cases which might be cited.

PIKE'S PEAK, COLORADO.

[*Official Number*, 99.]

Latitude	38° 48′
Longitude	104° 59′
Elevation of summit above sea-level	14,216 feet.

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Sergt. George Boehmer was ordered to this station July 21, 1873, to make the necessary arrangements for its establishment. As seventeen miles of telegraph-line had to be built, and the same amount of road made, to render the summit accessible before a shelter could be erected, considerable delay has necessarily occurred in getting ready for work. It is expected, however, that regular observations will be made from and after October 11, 1873. Four assistants are on duty, one of whom is a sergeant, and who, with one other assistant, will remain at the base to forward supplies to the party on the summit. An office has been rented at Colorado Springs for the use of the lower party, which can be made available as a station, should observation be desired in the future from this point.

PITTSBURGH, PENNSYLVANIA.

[*Official Number*, 41.]

Latitude	40° 32′
Longitude	80° 02′
Elevation of barometer above sea-level	791 feet.

The location of the office remains as at last report, and, being in the business center of the city, and within easy reach of the telegraph-offices, no change is recommended. Reports from twenty regular stations are received here, and also those from the special river-stations, whenever made. Four thousand one hundred and eighty-two regular, and nine hundred and eighty-seven river, bulletins have been issued during the year, and one hundred and four press-reports furnished for publication. One thousand six hundred and thirty-six manifold copies of the Synopsis and Probabilities have also been posted with the bulletins. The station has been supplied with the necessary apparatus for printing and issuing the midnight Synopsis and Probabilities to all post-offices that can be reached by 3 o'clock in the afternoon of the same day. The issue to offices begins November 1, 1873. The station was inspected in November, 1872, and instruments and records found in fair condition.

Sergt. William E. Smith was relieved at his own urgent request, April 1, 1873, and succeeded by Sergeant J. B. Murray, who still remains, and under whose charge the interest in the service has largely increased. Two assistants have been called in successively during the year for promotion, both of whom went through the usual course of instruction at Fort Whipple and passed a satisfactory examination. Three assistants are now on duty, two of whom are printers, and all are favorably mentioned by the observer as being attentive to duty.

River-observations are made and reported in the usual manner, the gauge used being the same referred to in the last annual report as constructed by the city authorities. This gauge measures the depth of water in the channel. The greatest depth that can be measured by it is 35 feet, the least is 2 feet. When the water falls below 2 feet another gauge is used. The lowest water-mark known is 9 inches in the channel, the highest water has never reached the top of gauge.

The leading newspapers at the station publish all reports, and have displayed a marked interest in the development of the service, especially in connection with the river-reports. This part of the service is also warmly commended by the merchants and others engaged in the river-trade.

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PORTLAND, MAINE.

[*Official Number*, 12.]

Latitude	43° 40′
Longitude	70° 14′
Elevation of barometer above sea-level	52 feet.

No change has been made in the location of the office since last report, but one is ordered as soon as suitable arrangements can be made for removal. This change is made in accordance with the recommendation of the inspecting officer, who visited the station in September of the present year.

No reports are received here, and therefore the only bulletins issued are those of the local observations, of which one thousand nine hundred and seventy-three copies have been furnished to the press. The leading newspapers also print the monthly abstracts of the local weather and the latest Probabilities received up to the hour of going topress.

Sergt. A. B. Williams remains in charge of the station, and has rendered all reports properly and promptly. One assistant has been ordered in and promoted during the year, after passing the usual examination. Private Charles Dill, the present assistant, has given satisfaction by his intelligence and attention to duty. Several errors in the manner of keeping the records were discovered by the inspector, and corrected under his supervision. A general desire is expressed by the citizens to have reports from other stations sent here as in previous years.

Thirty-six cautionary signals have been displayed during the year, of which twenty-five are reported as justified at the station. The observer makes the following remarks in reference to several of the signals:

November 7, 1872.—Boats in the harbor that had prepared to sail remained in, as the storm was quite violent at sea.

November 29–30, 1872.—The display of the signal was a benefit, as those vessels which were prepared to sail remained inside the harbor; those that were out came in considerably damaged and knocked to pieces.

December 9–10, 1872.—Quite a storm reported outside the harbor, doing considerable damage.

December 26–27, 1872.—The signal was hoisted several hours before the storm, affording sufficient time to make preparations, and no vessels left the harbor.

January 5–6, 1873.—Signal hoisted four hours before the commencement of gale, giving timely warning for vessels to prepare and remain in.

January 23–25, 1873.—Not much damage sustained by vessels, on account of the timely warning.

January 27–28, 1873.—From inquiry made, no vessels sustained injury in this port.

February 7–8, 1873.—No known damage sustained at this port.

March 15–17, 1873.—The gale broke the top off of the pole for the display of cautionary signals.

March 29, *April* 1, 1873.—By timely warning not a vessel left the harbor for their destination.

April 22–15, 1873.—Vessels all remained in the harbor; gale accompanied by heavy snow.

May 3–4, 1873.—Vessels all put into the harbor and remained.

August 14–15, 1873.—Gale light from the northeast at this station, but a heavy swell coming in from sea.

PORTLAND, OREGON.

[*Official Number*, 74.]

Latitude	45° 30′
Longitude	122° 27′ 30″
Elevation of barometer above sea-level	100 feet.

The office was moved December 21, 1872, to the building at the southwest corner of Washington and Front streets, where it still remains.

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All instruments are well exposed and the shelter is of the standard pattern.

Sergt. Edwin Garland was relieved for neglect of duty October 18, 1872, and succeeded by Sergt. J. E. Evans, who still remains, and has given entire satisfaction by the promptness and regularity with which all reports have been forwarded.

Private Charles M. Brown was ordered to this station as assistant September 26, 1873, but has not yet reported his arrival. The station was inspected in October, 1872, and found in very bad condition, and the observer immediately relieved as before stated.

There being no reports received here, the only bulletins issued are those of the local observations, which are regularly furnished the press. The telegraph-office is not kept open for the transmission of the midnight reports, which are therefore not forwarded until the morning following. Three observations were lost during the year from the cause stated in the following extract from the observer's journal for August 2, 1873:

About 4.15 a. m. a fire broke out near the office of observation, and on account of its spreading so rapidly the 4.32 a. m. observation was neglected. At 7 a. m. I thought it advisable to prepare for the removal of instruments, &c., but by 11 a. m. the fire was checked on Front street, near the office. At the commencement of the fire the wind was very light, but, as the fire increased, the wind strengthened, backing from the northwest to west. Instruments replaced in time to take the 7 p. m. and 9 p. m. observations.

PUNTA RASSA, FLORIDA.

[*Official Number*, 59.]

Latitude	27° 00′
Longitude	82° 18′
Elevation of barometer above sea-level	17 feet.

The location of the office at this station has been removed to a small building erected by the observer at a trifling cost to the Government.

The station was inspected in January of the present year and found in as good condition as could be expected under the circumstances. Sergt. William Theodovius was transferred to Key West on account of a personal difficulty with the telegraph operators, and his place filled by Sergt. M. J. Shanefelter from the latter station, who still remains, and has discharged his duties intelligently and well, all reports having been forwarded promptly and regularly.

Private Healy was transferred to the central office February 21, 1873, and succeeded by Private E. K. Moore, who still remains, and has given satisfaction. No reports are received here.

ROCHESTER, NEW YORK.

[*Official Number*, 32.]

Latitude	43° 08′
Longitude	77° 51′
Elevation of barometer above sea-level	584 feet.

The office still remains in the eighth story of Powers' Block, at the corner of State and Maine streets, one of the best locations in the city.

Reports from fifty-five other stations are received here and published in the usual manner. During the year two thousand six hundred and

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thirty-two manifold maps and five thousand and seventy-four bulletins have been issued, and eight hundred and fifty-nine press-reports furnished for publication. One thousand two hundred and eighty-eight manifold copies of the Synopsis and Probabilities have also been posted with the bulletins.

The three daily newspapers printed at the station publish regularly the latest Synopsis and Probabilities received, the Weekly Chronicle, monthly abstracts, tabulated press-reports, and also a daily local item giving a general summary of the weather at Rochester for the preceding twenty-four hours. Great interest has been displayed by the newspaper corps in the workings of the service.

The station was inspected in March of the present year and found in excellent condition. Sergt. F. M. M. Beall remains in charge, and has given entire satisfaction in his management. The inspector reports very favorably upon his zeal, attention to duty, promptness, and courtesy. He has recently commenced drawing the isobaric lines upon his manifold maps, and has been very accurate in his work in this and other respects. Private L. M. Crist was on duty as assistant until March 18, 1873, when he was promoted and assigned to the Cleveland station. He was succeeded by Private H. M. Wells, who still remains and is favorably mentioned by the observer for steadiness and good conduct. Sergeant Beall was permitted to leave the station for one month from August 4, and during his absence Sergt. George Onslow was in charge, having been sent from Fort Whipple for that purpose.

Twenty-four cautionary signals have been displayed during the year, of which thirteen are reported as fully, and three as partly justified, at the station. In reference to the results of these signals the observer remarks as follows:

October 16, 1872.—The storm was severe on the lake between 9 a. m. and 2 p. m. No vessel left port during "signal up," and none were observed out.

November 7–8, 1872.—No vessel left port during the display. The wind attained a velocity of thirty-five miles an hour, and from its variable force was dangerous. Many persons have mentioned their appreciation and use of the warning. The daily papers of the 8th instant make mention of its perfect reliability.

November 25–26, 1872.—The highest wind of the season. No vessels are known to have been out in the storm; navigation about closed.

November 27–28, 1872.—The velocity of the wind reached thirty-eight miles per hour, but was steady.

November 29–*December* 1, 1872.—Signal hoisted thirty-five hours before the storm reached the station. The storm followed, with low temperature, and was the most dangerous of the fall, the wind moving in fierce, sudden gusts, full of snow. The Erie Canal frozen up, and impassable to boats.

December 1–4, 1872.—The wind was steady, at twenty-eight miles an hour. No vessels entered or left the harbor; navigation about closed.

December 8–11, 1872.—The wind was very variable, accompanied by a light, fine, driving snow-storm.

December 13–16, 1872.—This signal closes a successful season of display, and they are suspended with a satisfactory increase of confidence in the ability of the service to make reliable storm-forecasts.

May 1–3, 1873.—Am informed by builders, shippers, and others, that a warning for an extensive rain is of as great value to their interests as a display for dangerous winds—the signal was, therefore, justified, as a cold, driving rain followed.

May 7–9, 1873.—It (the signal) had the usual effect of causing those whose business interests were affected by high winds and rain to prepare for the same. The community in general appear to have a settled and unquestioned dependence upon the signals

The inspector reports that a general desire is expressed in Rochester to have the signals repeated at Charlotte, seven miles distant, and on Lake Ontario, at the mouth of the Genessee River. The attention of the Chief Signal-Officer is respectfully invited to this subject.

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SAN DIEGO, CALIFORNIA.

[*Official Number*, 75.]

Latitude	32° 44′ 41″
Longitude	117° 08′ 00″
Elevation of barometer above sea-level	62 feet.

No change has been made in the location of the office at this station since the date of last report.

No reports are received here from other stations, and the only bulletins issued are those of the local observations, which are furnished regularly to the local newspapers and printed in excellent shape.

The station was inspected in October, 1872, and found in very good condition.

Sergt. John B. Wells remains in charge, and all his mail reports have been forwarded with commendable promptness and neatness.

The telegraph office is closed at the regular hour for sending the midnight reports, and they are not forwarded until the morning of the next day.

There is no assistant on duty at this station.

SAN FRANCISCO, CALIFORNIA.

[*Official Number*, 29.]

Latitude	38° 47′ 35″
Longitude	122° 26′ 15″
Elevation of barometer above sea-level	60 feet.

The office at this station still remains in the Merchants' Exchange. Reports are received irregularly from nine other stations, and during the year one thousand four hundred and seventy bulletins have been issued.

Sergt. W. B. Webster remains in charge, and has forwarded all reports promptly and satisfactorily. He has displayed marked zeal and enterprise in collecting and copying, for the use of the central office, the meteorological information contained in the logs of the vessels arriving at San Francisco from foreign ports. It is to be hoped that other observers at sea-port stations will follow his example. Private George Onslow was ordered in for promotion April 10, 1873, and after going through the usual course of instruction at Fort Whipple passed his examination, and is now in charge of a station.

Private James Higgins was transferred from another branch of the service to signal duty March 14, and placed on duty as assistant at this station, where he still remains. His conduct has not been of a nature to make such transfers in the future desirable. The station was inspected in October, 1872, and found in good condition. The inspector states that the service does not appear to be widely known, but is fully appreciated by those who have studied its workings. The daily Probabilities are not received on the Pacific coast.

SANTA FÉ, NEW MEXICO.

[*Official Number*, 69.]

Latitude	35° 41′
Longitude	106° 10′
Elevation of barometer above sea-level	6,862.2 feet.

The location of this office was removed June 28, 1873, to the Senna's

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Building, where it still remains, the change having been necessary to secure a better exposure for the different instruments.

The station was inspected in November, 1872, and found in fair condition. Sergt. John P. Clum remains in charge, and has forwarded his reports with moderate promptness.

He was absent for a month during the year, with permission, and the station was worked by an instructed civilian assistant. The telegraphic communication is very unreliable, and reports are consequently received irregularly. There is no regular assistant at this station, nor is any required, as no reports are received.

SAVANNAH, GEORGIA.

[*Official Number*, 22.]

Latitude	32° 05′
Longitude	81° 08′
Elevation of barometer above sea-level	71 feet.

No change has been made in the location of the office since the date of the last annual report.

The only reports received here are those from the West Indies and Florida stations, and are furnished regularly with the local observations for publication.

The station was inspected in February of the present year, and the instruments and records found in good condition.

The office itself needed some repairs, which have since been made.

Sergt. J. O. Manson is still in charge, and has given entire satisfaction.

All reports have been made promptly and properly by mail, and those by telegraph as regularly as the telegraphic facilities would permit.

Private McGillivray was ordered in for promotion June 3, and passed the required examination satisfactorily. He was succeeded by Private Hermann Frey, who is still on duty, and is favorably mentioned by the observer.

Twelve cautionary signals have been displayed during the year, of which four are reported as fully and two partly justified at the station. In reference to these signals the observer remarks:

October 23–24, 1872.—The wind blew steadily most of the day of the 23d, with some gusts in the afternoon. Several vessels were detained by the signal. From information received it appears that a severe gale was experienced along the immediate coast.

March 23–25, 1873.—The success that the department has attained as to accuracy in displaying cautionary signals begins to inspire in the breast of the mariner in port respect for the science which, on many an occasion during the last year, has indirectly saved numbers of vessels from destruction.

March 25–26, 1873.—No vessels left port during the display of this and the previous signal.

April 1–2, 1873.—The wind attained a velocity of thirty-six miles an hour. No injury resulted. Many persons doubted the verification of this signal, as the weather was very pleasant and clear at the time of hoisting.

September 19–20, 1873.—The wind reached a velocity of forty-eight miles an hour, with a southeast direction until 8 p. m. of the 19th, when it changed to west and then to northwest. No vessels left port during the day, and much uneasiness was felt by parties in vessels that left before the display of the signal was made.

SHREVEPORT, LOUISIANA.

[*Official Number*, 72.]

Latitude	32° 30′
Longitude	93° 45′
Elevation of barometer above sea-level	228. 5 feet.

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No change has been made in the location of the office since the date of last report. No reports are received here and no bulletins issued, except those of the local observations, which have been regularly furnished the press.

The station was inspected in March of the present year, and found in excellent condition.

Sergt. Hugh Coyle was in charge until his death from yellow fever, September 28, 1873, since which date the work has been done by Private John G. Lynch. Sergeant Coyle was one of the most faithful men of the service, and an earnest and conscientious worker. All his reports were forwarded promptly, and in perfect order. Two assistants have been called in successively for promotion during the year, one of whom is now reviewing his course of instructions, and the other has been relieved from duty in this division of the service for misconduct. Private Lynch, the present assistant, has discharged his duties intelligently and well, and is now in sole charge of the station.

River observations are made and reported here in the usual manner, the gauge used being one constructed by the observer, under the direction of this office.

The reference point in reporting depth of river is in the bed of river, and 40 feet below high water of 1849, and 25 feet above bottom of river. From bottom of river to high-water mark of 1849 is 65 feet.

Considerable interest is taken in the service here, especially in that part of it connected with the river-reports.

SAINT LOUIS, MISSOURI.

[*Official Number*, 66.]

Latitude	38° 37′ 28″
Longitude	90° 15′ 16″
Elevation of barometer above sea-level	543.54 feet.

The office was removed March 1, 1873, to the building of the Saint Louis Mutual Life Insurance Company, at the corner of Sixth and Locusts streets, where it now remains.

The officers of the insurance company and the members of the Chamber of Commerce have contributed liberally to the equipment of the station, and are entitled to the thanks of the office for their action. The present office is reported to be more convenient and better equipped than that of any other station. Reports from twenty-nine other stations are received here in the morning, with more or less regularity. In the afternoon the same reports are received, with the addition of those from all the special river-stations, and at midnight the number of regular reports is increased to seventy-six, from which a map is prepared, printed in time for distribution by daylight each morning, including Sunday.

During the year, fifty-three thousand one hundred and eighty maps, sixteen thousand six hundred and eighty-six regular, and six thousand and thirty-eight river bulletins have been issued, and three thousand and ninety-four press-reports furnished for publication. The station was made one of the centers of distribution for the printed Synopsis and Probabilities to post-offices, and on September 1, 1873, the issue was commenced to four hundred and fifty-five offices, two copies being furnished to each. The station was inspected in June of the present year, and the instruments, records, and office found in excellent condition.

Sergt. E. H. Singleton remains in charge, although it is proposed

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to transfer him to a larger field of duty at an early date. He has displayed unusual intelligence and ability in the manner in which he has discharged his duties and extended the usefulness of the service at this station, and he is commended to the especial attention of the Chief Signal-Officer. The inspector refers to him in the following strong terms of approval:

I have inspected every important station in the country, excepting Cincinnati, and consider the Saint Louis office the best managed of any, and that the interests of the service have been advanced more by the work of this station than of any other single one.

Four assistants have been relieved from duty at this station during the year for misconduct, two transferred to other stations, and one called in for promotion, who subsequently passed the required examination. Seven assistants are now on duty, of whom one is a sergeant, (W. O. Bailey,) sent to relieve the observer of a portion of his responsibility. All these men are worked to their full capacity, as the record of work shows, and all are favorably mentioned for general good conduct.

Through the agency of Sergeant Singleton, the police force of the city has been enlisted in the meterological service to the extent of making daily reports on forms furnished from the central office, and which have been proved of value in working up the local meteorology of the station. The chief of police has shown a commendable degree of public spirit in ordering this work done.

Arrangements have been made also by the observer for a wide distribution of the reports through the agency of the several railroad lines leading into Saint Louis, the nature of which is fully explained in the following statement of the observer:

At the last session of the State Board of Agriculture, held in this city, your observer was invited by that body to appear before them and explain in what manner the reports could be best utilized. With this request I complied, and I also suggested means whereby the farmers of Missouri and surrounding States could be put in possession of information sent daily from Washington, which would be of great value to them; the plan being simply to interest the railroad management in the matter, and to induce them to transmit the daily weather-reports over the wires gratis. From want of proper and concerted action upon the part of the various agricultural associations, the matter was left in abeyance until April last, when your observer, after consulting with several prominent railroad officials, determined to address a letter to the respective railroad presidents, briefly pointing out the advantages to be derived by furnishing their employés information as to the probable state of the weather. This letter met the approbation of the gentlemen addressed, and its provisions were immediately carried into effect, the operators at all telegraph stations being instructed to post a copy of the dispatch sent them in a conspicuous place in their office, and at large stations, where papers are published, duplicate copies were to be made on forms furnished by this office, that those papers might avail themselves of them. In addition to this work, the baggage-masters of morning trains were ordered to leave at each station, upon arrival, previous to 5 p. m., one of the daily weather-maps.

The Saint Louis, Rockford and Rock Island Railroad was the first to put this plan in operation; the action of this road was quickly followed by the Saint Louis, Vandalia and Indianapolis, the Cairo Short Line, the Saint Louis, Kansas City and Northern, the Chicago and Alton, the Saint Louis and Iron Mountain, and the Saint Louis and Southeastern; and thus the reports are distributed over a very large extent of country.

The press of this station has shown a marked degree of interest in the development of the service, and have published full reports in fine shape, and assisted the observer in many ways.

Mr. George H. Plant, chairman of the meteorological committee of the Chamber of Commerce, has also manifested a lively interest in the service.

River-observations are made here, and reported in the usual manner, and are received with great favor by the parties engaged in the river-trade.

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SAINT PAUL, MINNESOTA.

[*Official Number*, 39.]

Latitude	44° 53′
Longitude	93° 05′
Elevation of barometer above sea-level	794.53 feet.

The office still remains at the corner of Third and Market streets, and is favorably located. Reports from six northwestern stations are received here for transfer to Milwaukee and for local publication. The reports from all the principal river-stations are also sent here during the seasons of high and low water in the Mississippi, and of these five hundred and twenty-nine bulletins have been issued.

The local observations have been furnished to the press regularly and are published, together with the latest Probabilities received. The station was inspected in May of the present year and found in very bad condition, and the immediate relief of both observer and assistant was found necessary.

Sergt. C. W. Held was relieved for neglect of duty, May 15, 1873, and subsequently reduced to the ranks upon the recommendation of the inspector. He was succeeded by Sergt. H. E. Cole, who still remains, and has given entire satisfaction by the promptness and regularity with which he has forwarded all reports and the very neat manner in which they are made out. Two assistants have been relieved in succession during the year, one of whom deserted before reaching Fort Whipple.

Private James A. Barwick, the present assistant, has been on duty here since July 17, 1873, and been faithful and attentive.

Regular river observations are made and reported daily in the usual manner. The bench-mark is at the pier of the bridge, and is marked at extreme low water of 1864. The daily report of river is the depth of water above that mark. The depth of water in the channel at extreme low water is 1 foot 11 inches. There is no reliable high-water mark.

ISLAND OF SAINT PAUL'S, ALEUTIAN ISLANDS.

Latitude	57° 02′
Longitude	170° 00′
Elevation of barometer above sea-level	Unknown.

Reports have been received from the observer at this station for the period from June 5, 1872, to May 31, 1873, as shown in the special report already submitted. Private Charles P. Fish remains on duty, and his reports show that he has carried out his instructions in an intelligent and faithful manner.

SPRINGFIELD, MASSACHUSETTS.

This is not a reporting station, but was established July 19, 1873, for the distribution of printed copies of the midnight Synopsis and Probabilities to such post-offices as could be reached daily by 3 o'clock p. m. Private John G. Murray has worked the station alone, and given full satisfaction. He began work on the 28th of July, and supplies seventy-one offices daily. The office is in the Republican building, and in every way a desirable one.

TOLEDO, OHIO.

[*Official Number*, 35.]

Latitude	41° 4[illegible]
Longitude	83° 3[illegible]
Elevation of barometer above sea-level	649.5 fee[illegible]

The office is located in the fifth story of the chamber of commerc[illegible]

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building, at the corner of Madison and Summit streets, in the business center of the city, within convenient reach of the telegraph-offices and the various public buildings. An excellent exposure is afforded by the roof for the several instruments and the display of cautionary signals. The instrument-shelter is of the standard pattern, and projects from a window on the northeastern side of the building. The location of this shelter is not a good one, but is the best attainable at present. Reports from fifty-five stations are received here and published in the usual manner. During the year two thousand and ninety-eight manifold maps and three thousand seven hundred and six bulletins have been issued, and one hundred and fifty-five reports furnished to the press. In addition to this, nine hundred and eighty-two manifold copies of the Synopsis and Probabilities have been posted with the bulletins.

The station has been twice inspected during the year—once in October, 1872, and again in March of the present year. It was found in fair condition at both inspections. Sergt. A. C. Ford was relieved January 2, 1873, and transferred to the Chicago station, and was succeeded by Sergeant J. E. Cook, who still remains in charge and has forwarded all reports promptly and properly. The inspector commends him for his zeal and general good conduct. The record of work done, given above, shows that he has displayed a commendable energy in getting his reports before the public. Two assistants have been called in successively for promotion, and both have passed the required examination.

Private William McElroy is the present assistant, and has been on duty in that capacity since April 14. The observer speaks in warm terms of his attention to duty and capacity. The leading newspapers publish the tabulated reports from a selected number of stations, the monthly abstracts of local weather and latest probabilities received. A lively interest is manifested in the service among the citizens, and the office is visited daily by parties in search of meteorological information. Twenty-seven cautionary signals have been displayed during the year, of which seventeen are reported as justified at the station.

The observer remarks, in reference to these displays, as follows:

October 29–31, 1872.—Several persons made application for information, and a number of vessels detained in the harbor on account of the signal.

November 13–14, 1873.—Several vessels remained in port, and the masters of them made inquiries at the office, and expressed their entire satisfaction at the result of the warning.

May 6–9, 1873.—The schooner Minnie Powell left port on the morning of the 6th, and sprung a leak soon after getting into the lake, and was towed back some distance and sank. Amount of damage unknown.

VICKSBURGH, MISSISSIPPI.

[*Official Number*, 61.]

Latitude	32° 23′
Longitude	90° 54′
Elevation of barometer above sea-level	280 feet.

The office was removed October 1, 1872, to the third story of the building at the corner of Washington and Crawford streets. It is in the business center of the city, and in every respect well located. The instrument-shelter is of the standard pattern, and projects from a window with a northern exposure. The only reports received here are those from the principal river-stations in the afternoon. One thousand five hundred and eleven bulletins containing these reports have been issued during the year, and the local observations are furnished to the

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press whenever they will be published. But little interest is felt here in the service, except in connection with the river-reports, which are received with great favor.

The station was inspected in March of the present year, and the office, instruments, and records found in excellent condition.

Sergt. John Dascomb has been in charge of the station since October 4, 1872, on which date he was transferred here from Du Luth. His mail reports are promptly and properly rendered. Two assistants have been called in, successively, for promotion, and passed the required examination, after the usual instruction at Fort Whipple. One assistant, Private A. B. Hiltman, was ordered in for misconduct, June 16, and succeeded by Private C. L. Josselyn, who still remains and has given satisfaction.

River observations are made regularly and reported in the usual manner, the gauge used being the one constructed by the United States Engineer Corps, to which reference was made in the last annual report.

The midnight reports are not forwarded until the telegraph-office opens for business the next day, and as this is some time after the regular time of taking the morning observation, both reports are delayed. Until better telegraphic arrangements can be made, additional reports cannot be sent to the station with sufficient promptness to make them useful.

VIRGINIA CITY, MONTANA.

[*Official Number*, 77.]

Latitude	45° 00
Longitude	112° 03
Elevation of barometer above sea-level	5510 feet.

The office was removed on the 1st of July, 1873, but as the station has not been inspected since the change of office, no detailed account of its location or of the instruments can be given.

The latter are reported in good condition by the observer.

No reports are received here, and therefore no bulletins are issued.

Sergt. A. B. Knight was relieved for gross neglect of duty May 29, 1873, and reduced to the ranks. He was succeeded by Sergt. F. H. Wash, who also failed in his duty, and was relieved September 26, at which date Sergt. J. B. Campbell was ordered to the station. This station is the only one at which the work has been systematically neglected by its observers.

WASHINGTON, DISTRICT OF COLUMBIA.

[*Official Number*, 19.]

Latitude	38° 53′
Longitude	77° 01′
Elevation of barometer above sea-level	105. 56 feet.

The office remains as last year in the third story of the double building occupied by the Chief Signal Officer, at 1719 and 1721 G street, and the station, instruments, and records are in good condition. Sergt. Theodore Smith has been in immediate charge during the year, and the ability with which his duties have been performed has received tangible recognition from the honorable Secretary of War in an appointment as second lieutenant in the United States Army. Sergeant Smith has also had direct charge of the comparison, correction, and preservation of all records and reports received from repeating-stations, and has got them conveniently arranged for reference whenever needed. Ser-

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geants T. B. Jennings and E. B. Robbins have had charge of the first and second night-reliefs, respectively, and have been faithful and constant in their attention to duty.

Sergt. J. B. Newlin continues in charge of the correspondence, and has also taken charge of the station in the occasional absence of Sergeant Smith. He has been prompt and regular in attendance, and performed all duties assigned him satisfactorily.

Sergt. P. F. Nagle remains in charge of the lithographic rooms, and Sergt. H. C. Hirst of the printing-room. Both men have been zealous and constant in the performance of their duties, and have brought the work in their respective rooms to a high state of perfection. All the men now employed as assistants in the several rooms under my charge give satisfaction, and very few instances of misconduct or of neglect of duty have occurred during the year.

Reports from all stations are received here, and three maps are issued daily, being one for each of the tri-daily reports. One hundred and thirty-two thousand six hundred and eighty-two maps and sixteen thousand nine hundred and nineteen bulletins have been issued during the year, and one thousand one hundred and fifty-five press-reports furnished for publication. The issue of printed copies of the midnight "Synopsis and Probabilities" to one hundred and forty-six post-offices was commenced January 4, 1873, since which date seventy-five thousand five hundred and twenty-three copies have been distributed. In addition to these publications, nine thousand four hundred and two copies of the Weekly Chronicle and six thousand seven hundred and ninety-six copies of the Monthly Weather Review have been printed and distributed.

WILMINGTON, NORTH CAROLINA.

[*Official Number*, 20.]

Latitude	34° 11′
Longitude	78° 10′
Elevation of barometer above sea-level	30.7 feet.

No change has been made in the location of the office since the date of last report. No reports are received here from other stations, and the only bulletins issued are those of the local observations, which are furnished regularly to the daily newspapers, and printed with the latest Probabilities received.

The station has not been inspected since July, 1872, but the observer reports the records and instruments in good condition. Sergt. Robert Seyboth was transferred to the central office April 10, 1873, and succeeded by Sergt. Otto Schutze, who is now in charge, and has rendered all reports promptly and in excellent form.

Two assistants have been relieved during the year for misconduct, and one called in for promotion, who passed the usual examination. The present assistant is J. C. Senger, who has been on duty since August 12, 1873, and given satisfaction.

Twenty cautionary signals have been displayed here during the year, of which thirteen are reported as fully, and four as partly, justified at the station. The observer makes the following remarks in reference to these displays:

October 23–25, 1872.—The gale having been signaled sixteen hours in advance, the shipping in port were prepared for it, consequently no damage was done.
November 29–30, 1872.—No damage or injury reported.
February 27–28, 1873.—No injury to vessels reported.
March 2–4, 1873.—No vessels left port during the display, although several intended

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to do so on Sunday and Monday. An unusually severe storm is reported to have prevailed on Sunday afternoon on the North Carolina coast.

March 19–21, 1873.—No vessel left port during the display of signal, and no damage is reported.

March 23–27, 1873.—No damage done to the shipping in port, and no vessel left the harbor during the display of the signal.

March 28–30, 1873.—Three large foreign vessels were about to sail on Friday night, but remained in port on account of the cautionary signal. No damage done in port.

April 9–10, 1873.—A Norwegian brig and the schooner John went to sea before the signal was hoisted; both vessels, becoming unmanagable before they were out of the channel, collided heavily and were badly damaged.

September 19–20, 1873.—The signal was heeded by mariners, merchants, and the public. One of the most violent storms known for a number of years prevailed here from 1.30 a. m. to 5 a. m. of the 20th, the wind attaining a velocity of forty-eight miles per hour. Trees were torn up by the roots, chimneys and fences blown down, and large trees that heretofore had battled successfully with rude Boreas were compelled to bow in obedience to his mighty power. North of the city the storm was even more severe, destroying barns and out-houses, killing and crippling numbers of cattle, the rain coming down in torrents all the while.

WOOD'S HOLE, MASSACHUSETTS.

[*Official Number*, 60.]

Latitude	41° 33′
Longitude	70° 40′
Elevation of barometer above sea-level	25 feet.

This station was opened December 4, 1872, by Sergt. J. K. P. Purdum, who remains in charge. All the regular observations are made daily, but none are forwarded by telegraph, except when the instrumental indications are unusually threatening.

The principal object of the station is the display of cautionary signals, of which sixteen have been ordered during the year, and eleven of these reported as justified at the station.

The observer remarks, in reference to the verification of these signals, as follows:

March 8, 1873.—No damage, as far as heard from. At 11.26 p. m., the wind had a velocity of thirty-five miles per hour.

March 11–12, 1873.—The signal caused some vessels to stay in harbor—one captain said he would have lost his vessel had he made sail.

March 20–23, 1873.—The signal prevented several vessels from leaving port, and thus they escaped the gale. The captain of the steamer Island Home won't leave port while the signal is hoisted. No damage reported.

March 24–28, 1873.—Several vessels anchored in the harbor, and escaped the gale.

April 16–18, 1873.—One vessel wrecked on Broad Shoal, four and a half miles from Nobsque light-house; all the crew saved.

May 2–5, 1873.—The Island Home did not leave port, and escaped the gale.

May 8–9, 1873.—No damage reported. Several vessels anchored in the harbor during the gale.

August 13–15, 1873.—No damage at this place. The steamer New Bedford took warning, and did not run her trips; also the steamer Island Home.

The office is on Water street, and well located, in a meteorological point of view. The instrument shelter, which is of the standard pattern, projects in the usual manner from a window facing the north.

The anemometer, wind-vane, and rain-gauge are placed on a platform built on the roof of a shed connected with the house in which the office is located, and are well exposed.

The fishermen of the place are of the opinion that it is one of the most important points on the coast for the display of signals, as it is not unusual for from 200 to 300 vessels to seek shelter in the harbor in case of storms.

The station was inspected in January of the present year, and found

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in a fair condition; but all errors were corrected under the supervision of the inspector.

The observer has forwarded all his mail reports promptly and in a satisfactory shape.

WYTHEVILLE, VIRGINIA.

[*Official Number*, 91.]

Latitude	36° 58′
Longitude	81° 05′
Elevation of barometer above sea-level	2294.8 feet.

This station was occupied January 16, 1873, by Sergt. F. Z. Gosewisch, who still remains in charge and has given entire satisfaction by the prompt and neat manner with which all reports have been forwarded.

The office is well located over the store of Messrs. Crush & Snow, and the roof exposure of the instruments is good. The station has not been inspected, and the details of the position of the several instruments is unknown. Their condition is reported as good by the observer. No reports are received here and none sent by telegraph, the station being one of observation alone. The local observations are regularly furnished to the press.

YANKTON, DAKOTA.

[*Official Number*, 95.]

Latitude	42° 50′
Longitude	96° 44′
Elevation of barometer above sea-level	1296 feet.

An observer was ordered to this station March 11, 1873, and he began sending regular telegraphic reports April 1, 1873. The office was at first located some distance from the town in a building belonging to Mr. Clevenger, and fitted up for the purpose by that gentleman, but as the wire by which it was connected with the main telegraph-office did not work satisfactorily, the observer moved, July 3, to a room on the third floor of the St. Charles Hotel, at the corner of Capitol and Third streets, where it is eligibly located and convenient of access to the principal public buildings and to the river. The roof exposure of the instruments is excellent. The instrument-shelter projects in the usual manner from one of the office windows, facing west, as a northern front could not be obtained.

No reports are received here, and consequently no bulletins issued, except those of the local observations, which, with the monthly abstracts, are regularly furnished the Weekly Press, and published in good form.

The station was inspected in July of the present year, and found in good condition. Several irregularities in the manner of keeping the records were discovered, and corrected under the supervision of the inspector. Sergt. N. Phelps has been in charge of the station since its establishment, with the exception of one month, when he was absent with permission, and his place filled by Sergt. George Onslow. All mail reports have been forwarded promptly and in proper form. River observations are made and reported in the usual manner each afternoon. The gauge used is one constructed by the observer, and although roughly made, is accurately graduated. The bed of river is the zero point of the gauge, and the actual depth of water in the channel is therefore reported.

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In reference to the interest taken in the service the inspecting officer remarks as follows:

I learn from most reliable sources, Governor Burbank, Colonel Foster, A. Q. M., and other gentlemen, that a misapprehension existed among the citizens and others as to the scope of the observer's duties at this point. They supposed that he was to foretell storms, and when the exceedingly severe storm of April 13 came upon them without warning, driving from their camp into private houses the men of the Seventh Cavalry, there was a great feeling of bitterness toward the observer by the enlisted men of that organization, and they threatened violence to him within hearing of citizens. The observer was then located in the suburbs, and did not visit town, and so had no personal threats. The misunderstanding as to his duties has been removed, yet the citizens retain their interest in the service.

SPECIAL RIVER-STATIONS.

Since the date of the last annual report nineteen stations have been selected on the principal western rivers and their tributaries, at which regular river observations are made and reported to this office by telegraph. These stations are independent of those occupied by enlisted men of the signal-service, and the observations are limited to the rise and fall of the rivers in which they are located, the state of the weather, and the direction of wind at the time of report. Each station is in charge of some well-known citizen, who takes sufficient interest in the service to make the observations regularly and correctly, and the general result of the past year's experience has been satisfactory in demonstrating both the practicability and the usefulness of the work. The reports are sent over all the river circuits, and dropped at each of the regular stations on the principal rivers. The following table shows the names of the several stations, the rivers upon which they are located, the name of the observer, and the date at which each began reporting:

	Stations.	Rivers.	Names.	Commenced reporting.
1	Freeport, Pa	Alleghany	David Alter	April 17, 1873
2	Hermann, Mo	Missouri	Edward Kehr	April 24, 1873
3	Jefferson City, Mo	do	Louis C. Lohman	May 12, 1873
4	Oil City, Pa	Alleghany	J. D. Thompson	April 20, 1873
5	Brownsville, Pa	Monongahela	J. Allen Hubbs	June 6, 1873
6	Evansville, Ind	Ohio	A. C. Pushee	April 21, 1873
7	Confluence, Pa	Youghiogheny	M. Tannehill	April 23, 1873
8	New Geneva, Pa	Monongahela	H. T. Davenport	April 24, 1873
9	Lexington, Mo	Missouri	Z. S. Mitchell	April 28, 1873
10	Kansas City, Mo	do	H. A. M. Vaughan	April 21, 1873
11	Brunswick, Mo	do	G. D. Kennedy	May 1, 1873
12	Little Rock, Ark	Arkansas	C. H. Conradt	April 21, 1873
13	Plattsmouth, Nebr	Missouri	A. L. Child, M. D	April 20, 1873
14	Marietta, Ohio	Ohio	J. H. Best	April 19, 1873
15	Saint Joseph, Missouri	Missouri	A. L. Kerr	May 8, 1873
16	Warsaw, Ill	Mississippi	D. H. Cox	May 7, 1873
17	Paducah, Ky	Ohio	Capt. C. Bachman	May 1, 1873
18	Booneville, Mo	Missouri	W. H. Young	April 28, 1873
19	Le Claire, Iowa	Mississippi	J. P. Disney	June 2, 1873

From July 1 to the present date, only one report per week from each station has been received by telegraph; but the observations have been kept up regularly at all of them, and reported weekly by mail on the established form adopted by the office. The regular daily telegraphic reports will be resumed October 1 and continue until the close of navigation renders them unnecessary. The instructions issued to these special stations, with the cipher in which the reports are transmitted, and the location of the "bench-marks" at all the river-stations, both regular and special, have been previously submitted to you and approved. Other instructions will be issued from time to time, as occasion requires.

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WEST INDIA ISLANDS.

HAVANA, CUBA.

[*Official Number*, 100.]

Latitude	23° 9′ 24″
Longitude	82° 22′
Elevation of barometer above sea-level	21.66 feet.

Observations were commenced at this station June 22, by Mr. Charles Hasselbrink, and forwarded weekly by mail on the regular form until August 6, 1873, when the transmission of the morning and afternoon reports by telegraph began, and has been continued with as much regularity as the telegraphic facilities would permit. The midnight reports cannot be sent under the present arrangements, as the telegraph-office closes in the afternoon.

The observation office is at No. 63 Neptune street, and is believed to be well located.

KINGSTON, JAMAICA.

[*Official Number*, 4.]

Latitude	17° 58′
Longitude	76° 47′ 30″
Elevation of barometer above sea-level	unknown.

Observations are taken by Mr. James Gall, who began reporting by telegraph September 18, 1873, and has sent two reports daily since that date, with as much regularity as the telegraphic facilities will permit.

The midnight report cannot be sent from this station at present, as the telegraph-office closes in the afternoon.

The office is at "Myrtle Bank," and Mr. Gall has taken all necessary steps to make his station useful and his reports accurate.

SANTIAGO DE CUBA.

[*Official Number*, 3.]

Latitude	20° 00′
Longitude	76° 00′
Elevation of barometer above sea-level	unknown.

The first report from this station was received September 29, 1873, and was not a full one, as the authorities would not permit the use of cipher. As their action appears to be based upon a misunderstanding of the purpose for which the cipher is used, application has been made to have the restriction removed, and the agent reports that it will probably prove successful. Until this is done reports will not have the same value as those from other stations, as they are limited to the usual ten words.

CANADIAN STATIONS.

Regular telegraphic reports are now received from eleven stations in the Dominion of Canada and other British provinces. Their names and position are given below:

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TORONTO, ONTARIO.

[*Official Number*, 58.]

Latitude	43° 39′ 24″
Longitude	79° 21′
Elevation of barometer above sea-level	342 feet.

Reports have been received regularly during the whole year via Buffalo.

MONTREAL, QUEBEC.

[*Official Number*, 56.]

Latitude	45° 30′
Longitude	73° 25′
Elevation of barometer above sea-level	

Observations are made and reported regularly by Professor Charles Smallwood, director of the Montreal Observatory, one of the oldest and most experienced observers in the Dominion.

QUEBEC, QUEBEC.

[*Official Number*, 57.]

Latitude	46° 29′ 12″
Longitude	71° 13′ 45″
Elevation of barometer above sea-level	336 feet.

Reports have been received regularly via Buffalo.

KINGSTON, ONTARIO.

[*Official Number*, 80.]

Latitude	44° 12′
Longitude	75° 41′
Elevation of barometer above sea-level	326.7 feet.

Reports have been received regularly via Buffalo.

PORT STANLEY, ONTARIO.

[*Official Number*, 78.]

Latitude	42° 40′
Longitude	81° 13′
Elevation of barometer above sea-level	584 feet.

Reports have been regularly received via Buffalo.

PORT DOVER, ONTARIO.

[*Official Number*, 79.]

Latitude	42° 47′
Longitude	80° 13′
Elevation of barometer above sea-level	619 feet.

Reports have been received regularly via Buffalo.

SAUGEEN, ONTARIO.

[*Official Number*, 81.]

Latitude	42° 40′
Longitude	81° 16′
Elevation of barometer above sea-level	597 feet.

Reports have been received regularly via Buffalo.

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FORT GARRY, MANITOBA.

[*Official Number*, 88.]

Latitude	49° 52′
Longitude	96° 58′
Elevation of barometer above sea-level	654 feet.

Reports began January 1, 1873, and have been regularly received via Saint Paul, Minn.

HALIFAX, NOVA SCOTIA.

[*Official Number*, 89.]

Latitude	44° 39′ 42″
Longitude	63° 35′ 30″
Elevation of barometer above sea-level	

Began reporting regularly December 9, 1872, and received via Buffalo.

CHATHAM, NEW BRUNSWICK.

[*Official Number*, 2.]

Latitude	47° 01′
Longitude	65° 30′
Elevation of barometer above sea-level	

Began reporting September 23, 1873, and received via Buffalo.

CAPE ROZIER, QUEBEC.

[*Official Number*, 1.]

Latitude	48° 56′
Longitude	64° 21′
Elevation of barometer above sea-level	

Began reporting September 27, 1873, and received via Buffalo.

The reports from all these stations, except Fort Garry, are collected at Toronto by Prof. G. T. Kingston, the chief of the Dominion meteorological bureau, and forwarded by him in a consolidated form. The same cipher is used as for those made at the regular stations in the United States, and weekly transcripts of the observations are forwarded regularly by mail on forms prepared by Professor Kingston. The numbers given the several stations are for the convenience of our own observers in reporting them on Form 19.

RECAPITULATION.

Number of sergeants on station at this date	88
Number of assistants on station at this date	93
Number of deaths during the year	5
Number of desertions during the year	5
Of the deaths, three were accidental and two from yellow fever.	
Total number of maps issued during year	320,770
Total number of regular bulletins issued during year	143,097
Total number of river-bulletins issued during year	23,210
Total number of press-reports issued during year	23,224
Total number of post-office bulletins issued during year	895,014

Paper 13 is a table of condensed meteorological statistics reported from these stations. The report from the observer on the island of Saint Paul, in the Aleutian group, presents some points of peculiar interest, and is given separately in Paper 14.

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There are seventy-eight stations now established in the United States and in regular operation, being an increase of thirteen during the year. The plan on which these have been designated was minutely described in the last annual report.

For the exact study of the phenomena of the upper portions of the atmosphere, and to determine more accurately the proper reductions to be made for great elevations, temporary stations have been established at favorable points. In addition to the regular station on the summit of Mount Washington, New Hampshire, three others, one at the base, and two dividing the interval between the base and the summit, were in operation between June 1 and July 31, (Paper 15.) The summit of Mount Mitchell, North Carolina, was occupied as a station during the months of June, July, and August, and the base of that mountain was also occupied during August, (Paper 16.) For similar reasons the difficult task of establishing a permanent telegraphic station on the summit of Pike's Peak, Colorado, at an elevation of 14,216 feet, has been accomplished, and the station is now in operation. A telegraphic line seventeen miles in length has been built to connect the summit with Colorado Springs, and a road has been made by which it is easily accessible. A substantial building has been erected on the crest of the peak. By the care of the honorable the Secretary of War proper steps have been taken to declare a portion of the mountain to be a Government reservation.

Material aid has been contributed to the establishment of this station by citizens of Colorado Springs, and by the officers of the Denver and Rio Grande Railroad Company. Mr. Matt. France, of Colorado Springs, and Mr. B. F. Woodward, of Denver, are entitled to special thanks for their exertions. It is in contemplation to take observations from the base of the mountain, as well as the summit, during a period sufficient for useful comparisons. The discussion of these observations will be entered upon as soon as is practicable.

The system of thorough inspection of each station by officers specially instructed for the purpose, alluded to in the last annual report, has been continued, experience showing it to be indispensable. First Lieut. Charles S. Smith, Fourth United States Artillery, acting signal-officer, continued on that duty from October last until April 5, subsequently being relieved from detail with this office. First Lieut. A. W. Greely, Fifth United States Cavalry, acting signal-officer, has been during the whole year engaged in inspection duty, to the manifest benefit of the service. Paper 17 shows the dates at which sixty-four separate stations have been inspected and by whom.

The reports now received by comity of exchange with the Dominion of Canada are from eleven stations, four having been added during the year. Return reports are telegraphed to Prof. G. T. Kingston, of Toronto, chief of the meteorological bureau of the Dominion, at his request. Separate reports have also been received from Prof. Charles Smallwood, director of the Montreal Observatory. Warnings are given to the meteorological bureau of the Dominion whenever the conditions known at this office are such as to indicate unusually dangerous weather on the lower lakes or eastern provincial coasts, in a manner and by a special arrangement of cipher agreed upon. The immediate value of this international system to both countries is now frequently shown, while its future good results, political and practical, will increase by time, and with the more thorough interchange which will follow the extension of both services.

After much delay arrangements have been completed by which telegraphic reports, regarded as essential for meteoric indications, are

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obtained from the West India Islands. The regular telegraphic reports from Havana, Cuba, began on August 6, from Kingston, Jamaica, on September 18, and from Santiago de Cuba, on September 29. Three other points in the islands of Porto Rico, Guadeloupe, and Barbados will be equipped as soon as observers can be designated. The arrangements are, in brief, that the observers at the stations are residents of the locality, specially recommended for their fitness, and the instruments are furnished by this office, which also pays for telegraphing the reports. The West India and Panama Telegraph Company transmits reports at one-third its regular rates, and is to be commended for its liberality. There is no international arrangement with the authorities of any of these islands, which fact is greatly to be regretted, nor is there at present any return of telegraphic reports provided for or officially requested. Mr. Adolf Strauss, of Havana, has rendered much assistance in procuring these reports.

The system of telegraphing the rise and fall of water in the principal rivers, commenced during the year 1872, has been extended. In addition to the regular stations, twenty in number, upon the Mississippi River and its confluents, which furnish the river-report in addition to that of the meteoric changes, nineteen other stations have been selected on the principal western rivers and their tributaries, from which special river-reports are received by telegraph.

These stations are independent of those occupied by enlisted men of the signal-service, and the observations are limited to the rise and fall of the rivers, the state of weather, and the direction of wind at the time of report. Each station is in charge of some well-known citizen, who is compensated for making the observations regularly and correctly. The general result of the past year's experience has been satisfactory, in demonstrating both the practicability and usefulness of the work. These reports are bulletined at each of the regular stations on the principal rivers.

The observations are required to be taken daily and forwarded by telegraph at certain seasons of the year when danger from freshets may be anticipated. At other seasons the observations are taken daily and reported weekly by mail, on forms furnished by this office. In the present year daily telegraphic reports have been had from each station from the date of its establishment to July 1st. They will be resumed October 1st, and continued until the close of navigation renders them unnecessary. Paper 18 contains the instructions issued to these special stations, with the cipher in which the reports are transmitted, and Paper 19 the location of the "bench-marks" at all the river-stations, both regular and special. The advantage already gained to the river commerce through their publication has been gratefully acknowledged. It is now attempted by this office to analyze these reports as received, in connection with the reports of other phenomena, and to prepare for publication a synopsis of the rise and fall of water, stating the present condition of the rivers reported upon and that probably to follow. A continued study of this subject will, it is hoped, allow of prognostics to protect river commerce, and the districts whose safety depends upon levees, from the disasters occasioned by freshets, as well as to give warnings useful for the navigation which is affected by the stage of water. The charts prepared by Lieut. Henry Jackson, acting signal-officer and assistant, attached to Paper 18, illustrate graphically the fluctuations during the year in the following rivers, viz, the Mississippi, Missouri, Ohio, Red, and Cumberland.

The whole number of stations of observations from which this office

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now receives its stated reports is ninety-two, of which seventy-eight are the regular stations in the United States, eleven belong to the Canadian system, and three to that commenced for the West Indies.

Applications have been received for the establishment of one hundred and forty-nine stations, which, with the present appropriations, cannot be supplied. Paper 25 exhibits a list of these stations.

The number of observer-sergeants on duty at this date is eighty-eight. The assistants to observers at stations number ninety-three.

Justice to the two civilian clerks provided by law for this office requires the renewal of the recommendation contained in the last annual report, that they should receive a more adequate compensation, which would be accomplished by an amendment of section 19 of the act of Congress approved March 3, 1863, changing the words "class two" to "class four." The services of these clerks are valuable. Their laborious duties can to some extent be estimated by reference to the appropriate heads in Paper 8. On examination of the classification of clerks in the several bureaus of the War Department, it is ascertained that no duties similar in character and equal in amount to those performed by the two clerks of the signal-service, are paid for at so small a rate as that provided for them ten years ago, when the work of the office was comparatively small.

The comparison and testing of meteoric instruments for the purpose of establishing standards has been continued, as also the study and experiment to provide improved apparatus for the equipment of stations. An electrical self-recording river-gauge, devised by Second Lieut. D. J. Gibbon, acting signal-officer, especially for use at river-stations, is still being tested, as is also one more recently devised by First Lieut. H. H. C. Dunwoody, acting signal-officer and assistant. The electrical self-recording attachment to the anemometer, devised by Lieutenant Gibbon, heretofore adopted by this office, has been improved by him, through the addition of electrical machinery connecting it with the wind-vane, by which the direction, as well as the velocity, of the wind is continuously given. A description of this instrument is given in Paper 7. Lieutenant Gibbon has also devised a self-recording barometer, the fluctuations of which are recorded continuously by means of electricity. This instrument has advantages in simplicity and cheapness.

The instrument-room at this office has been under the general charge of First Lieut. H. H. C. Dunwoody, acting signal-officer and assistant. Paper 20 gives a detailed report of the instruments compared and corrected for station-work, and tested for other purposes during the year.

The telegraphic service connected with the office has been, since January 1st last, under the special charge of Mr. James A. Swift, electrician, whose duties have been well performed. Seven hundred and sixty-eight thousand and sixty-six cipher words of weather-reports have been received by telegraph at, and three hundred and nineteen thousand nine hundred and ninety-two sent from, this office during the year. Three thousand seven hundred and twenty-one telegraphic messages, other than weather-reports, but connected with that work, have also been received, and three thousand four hundred and eighty-six sent. Eighty-three thousand one hundred and thirteen mailed reports have been examined and compared with telegraphic copies, and filed for future reference. The auditing of the bills of telegraph companies is also under the supervision of the electrician.

In the regular discharge of the duties of the office three telegraphic

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reports are received daily, each report averaging eight hundred and sixteen cipher words. The average time of transmission from the moment the instruments are read at the several stations until the reports of those observations are received at this office, has been eighty-five minutes.

The office has still to regret that its telegraphic facilities are not as complete as the best discharge of the duties in its care would require. The hope is entertained that this source of difficulty will be removed.

The preparation of the deductions, known as the Synopses and Probabilities, from the meteoric data recorded at this office, and the editing of the regular publications, the "Weekly Weather Chronicle," "Monthly Weather Review," "Synopses, Probabilities, and Facts," have been during the year in immediate charge of Prof. Cleveland Abbe, assistant; First Lieut. Robert Craig, acting signal-officer and assistant; Prof. Thompson B. Maury, assistant; and First Lieut. H. H. C. Dunwoody, acting signal-officer and assistant. The duties have been performed by them in rotation, each having care of the preparation of the deductions for the period of one month, and for the succeeding month supervising the publications above mentioned. The services of these officers upon these and other special details assigned them have been marked by fidelity.

A regular course of study and practice is pursued by officers at this office in preparation for these duties. As a portion of this course the following writings are required to be carefully read in the order named, viz: Loomis's Treatise on Meteorology; Practical use of Meteorological Reports and Weather-Maps; Instructions to Observer-Sergeants; Smithsonian Directions for Meteorological Observations; Buchan's Handy Book of Meteorology; Piddington's Horn Book; Espy's Philosophy of Storms; Fitz Roy's Weather-Book; Martin's Rotary Theory of Storms; Ley's Laws of the Winds; Espy's First Meteorological Report; Espy's Fourth Meteorological Report. In connection with these works, and reference had to others in the library of the office, the officer is required to make studies of the daily weather-maps noting thereon the atmospheric conditions as indicated by the reports, with the variations in pressure, temperature, humidity, wind-direction, &c., and the consequent changes as exhibited from day to day. The study of text-books and publications on the subject of meteorology is not considered sufficient for purposes of the education in view, without constant comparison of the reports in their sequence, and the charting of them as received, with the advice and correction of officers experienced in the duty. The charting of weather-maps is thus practiced until the officer becomes thoroughly familiar with the process, after which the preparation of deductions from the tri-daily reports is commenced and made a continuous study. Special attention is given to the subject of cautionary signals, with reference to the direction and velocity of wind considered dangerous at the various cautionary-signal stations.

The tri-daily Synopsis and Probabilities have been issued from this office in the manner explained in previous reports with unfailing regularity at 10.30 a. m., 6.30 p. m., and 1 a. m., daily, no case of omission or serious delay having occurred during the year.

The display of bulletins and weather-charts at stations, the supply of prompt and gratuitous information to the press, and the exhibitions at designated stations of day or night signals at times of supposed special danger, have been continued. The total number of tabulated bulletins issued and distributed at the several lake, sea-coast, and river ports, and

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inland cities have been one hundred and forty-three thousand and ninety-seven, excluding the special river-bulletins, which have amounted to twenty-three thousand two hundred and ten. The total number of weather-charts issued and distributed has been three hundred and twenty thousand seven hundred and seventy, and the press-reports (exclusive of the publication of the Synopses and Probabilities) have been twenty-three thousand two hundred and twenty-four.

The attention of the office has, during the past year, been frequently directed to the fact that the publication of the deductions known as Probabilities alone, as given in many of the journals, is not a sufficient exhibit of the data supplied. It ought to be understood that these deductions given alone constitute but an inferior portion of the information furnished. The plan of the office has been, from the beginning, to publish for public use, and tri-daily, four principal papers: 1st. The tabulated bulletins, exhibiting tri-daily the observations as read at each station; 2d. A chart presenting these data chartographically; 3d. A Synopsis; and 4th. A Probability. Each of these papers ought to be read with reference to the others, and if such reading is made with the use of local instruments and some knowledge of meteoric laws, it will be found that the instances are few in which important meteoric changes occur without some warning given of their approach. The tabulated bulletins are prepared for the press at most of the principal cities. The Synopsis is invariably transmitted to the several press associations, together with the Probabilities, the former condensing the facts upon which the opinions stated in the latter are based. The publication of the Probabilities alone causes the forecasts to appear as mere oracles, and not, as they are designed to be, scientific inferences or deductions from meteorological data actually recorded.

The office has continued, under the direction of the Secretary of War, its exertions to solve for the special benefit of agricultural interests the problem of giving promptly the information contained in the daily weather-reports to the many farming and other communities not now reached by telegraph, and for which the copies published by the press do not arrive in time for use. The plan adopted has been to divide the territory of the United States into districts, each district having a distributing point at or near the center, from which two printed copies of the Synopses and Probabilities are forwarded by mail to all post-offices within the districts and which can be reached by rail, steamer, or mail-coach by 4 p. m. of the same day. These reports are designed to exhibit the probable condition of the weather in the district, including not only notice of storms generally considered dangerous, but, when possible, giving indication of dry weather, light rain, extremes of temperature, and frost.

On December 7 last a request was made by the Chief Signal-Officer to the honorable the Postmaster-General, with the approval of the honorable the Secretary of War, for his favorable action upon the plan indicated, and was responded to by the Postmaster-General on December 11, with assurance of the co-operation of the Post-Office Department, and the information that he had issued an order instructing all postmasters receiving the above-mentioned reports by mail to post them immediately in the frames supplied for that purpose by this office. So soon as the necessary arrangements could be made, the plan went into operation. The following list shows the stations taken up as distributing points, the time when the special work commenced at each, and the number of post-offices supplied from it.

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Station.	Commenced.	Number of offices supplied.
1. Washington	Jannary 3, 1873	146
2. New York	February 25, 1873	607
3. Cincinnati	April 7, 1873	753
4. Chicago	June 14, 1873	798
5. Detroit	July 21, 1873	337
6. Buffalo	July 25, 1873	153
7. Boston	July 15, 1873	403
8. Springfield	July 28, 1873	71
9. Memphis	August 25. 1873	59
10. New Orleans	September 15, 1873	30
11. Pittsburgh	October 1, 1873	298
12. Saint Louis	September 1, 1873	435
13. Montgomery	September 20, 1873	45
14. Nashville	September 4, 1873	96
15. Bangor	September 30, 1873	160

The correspondence on this subject is contained in Paper 21, to which is attached a chart exhibiting the distributing districts contemplated, as well as those established. The co-operation of the War and Post-Office Departments thus described now provides for the regular distribution daily of eight thousand nine hundred and eighty-two copies of the weather report to four thousand four hundred and ninety-one different post-offices, and will still be extended as rapidly as possible. The whole number of these special bulletins printed and distributed is eight hundred and ninety-five thousand and fourteen. The Synopses and Probabilities, as deduced from the midnight observations, are telegraphed at once from the central office at Washington to each of the distributing stations, and there printed in large type by the enlisted men of the signal-service, addressed to the several postmasters, and mailed according to a systematic arrangement, which takes advantage of every moment to reach each point with the greatest speed. The success already attained in the practical working of this plan, and the obvious satisfaction it has given to the public, should be a subject of gratification to the War and Post-Office Departments, as it is to this office. The thanks of the Department are due the honorable the Postmaster General for the facilities furnished, and under him to Mr. George S. Bangs, superintendent of the railway mail-service, for his personal as well as official assistance. By the different modes of publication adopted for the service, each of which has been arranged with definite purpose, and including that had through the public press, it is estimated that the information emanating from this office reaches daily one-third of the households in the United States.

For the purpose of rendering the office better acquainted with the wants of the agricultural community, many agricultural societies have, at the request of the Chief Signal-Officer, appointed permanent committees to correspond and confer with the office. One hundred and seventeen of these organizations are now in correspondence, (Paper 22,) and notice has been given by others that committees will soon be appointed by them. A list of similar committees appointed by the boards of trade and chambers of commerce, forty-four in number, is in Paper 23.

It has been a duty of the office to publish the information obtained by it in the form of collated statistics. The Weekly Weather Chronicle, which was briefly alluded to in the last annual report as commenced, has been enlarged and improved. Each copy exhibits a general summary of the meteoric changes over the whole region from which reports are received, during the seven days previous to the day of publication,

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as well as for each separate day. A special reference is made to the river-reports. (Paper 24).

During the year nine thousand four hundred and two copies have been gratuitously distributed to committees of agricultural societies and boards of trade, to scientific persons in this country and abroad, and to the press.

The Monthly Weather Review, the publication of which was commenced in January last, reviews the facts for each month concerning storms, winds, rain-fall, air, river, and ocean temperatures, and the rise and fall of rivers. It is accompanied with charts showing the tracks of low barometric pressure, the isobars, isotherms, and prevailing winds for the month. The number of copies of this publication issued during the year has been six thousand seven hundred and ninety-six. Paper 25 includes the reviews issued since the date of the last annual report.

The Daily Bulletin has been prepared as a monthly publication for each month, from and including September, 1872. Each volume exhibits the several reports from synchronous observations at the various stations at the regular hours, viz, 7.35 a. m., 4.35 p. m., and 11 p. m., Washington mean time, with the weather-chart on a reduced scale for each observation in immediate connection not only with the Synopsis and Probabilities issued for each observation, but the "Facts" succeeding the latter being collated in detail from the reports of the observers made at the next regular observation following the issue of each Probabilities. This publication exhibits the data upon which this office has been compelled to act in making its tri-daily announcements, and presents for general use the information gathered. This work is not only a contribution of data valuable to meteoric science, but aims to show impartially and in detail the successes and failures of the office.

The publications of the office thus referred to amount in the course of the year to many volumes. The scope of an annual report permits this brief reference to them only.

At the request of Prof. Spencer F. Baird, United States commissioner of fish and fisheries, the work of the observers at the stations favorably located for the purpose has been increased, by requiring observations to be taken daily of the water temperatures in the different rivers and harbors. The reports of these observations are made on a special form, (Paper 24.) These reports have not yet been continued sufficiently long to permit of safe deductions, but promise to have useful results in the solution of problems beyond the important objects of pisciculture throughout the United States for which they were at first instituted.

An additional duty was imposed upon the Secretary of War by the provision of the act of Congress approved March 3, 1873, entitled—

An act making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, eighteen hundred and seventy-four, and for other purposes, as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following sums be, and the same are hereby, appropriated for the objects hereinafter expressed, for the fiscal year ending June thirtieth, eighteen hundred and seventy-four, namely:

* * * * * * * * *

For contingencies of life-saving stations on the coast of the United States, fifteen thousand dollars. And that the Secretary of War be and hereby is authorized to establish signal-stations at light-houses, at such of the life-saving stations on the lake or sea coasts as may be suitably located for that purpose, and to connect the same with such points as may be necessary for the proper discharge of the signal-service by means of a suitable telegraph line in cases where no lines are in operation, to be constructed, maintained, and worked under the direction of the Chief Signal-Officer of the Army, or

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the Secretary of War and the Secretary of the Treasury; and the use of the life-saving stations as signal-stations shall be subject to such regulations as may be agreed upon by said officials; and the sum of thirty thousand dollars is hereby appropriated to carry into effect this provision.

In discharge of this duty a telegraph line has been completed ten miles in length, from Seaville to Peck's Beach, N. J., connecting at Seaville with the line of Western Union Telegraph Company. The material is ready, and the work is in progress on the construction of a line from Sandy Hook to Barnegat Inlet, N. J., a distance of fifty miles, connecting with the Western Union line at Long Branch. These connections will allow of signals being displayed at the life-saving stations established at Sandy Hook, Long Branch, Barnegat, Atlantic City, Peck's Beach, and Cape May. The plan in contemplation proposes the establishment of signal-stations at life-saving stations and light-houses along the ocean-coast of New Jersey, from Sandy Hook to Cape May, at distances of twenty-five miles from each other. A line is in process of erection from the village of Rockport, Mass., to Thatcher's Island light-house, a distance of three miles and a half, of which one mile and a half will be cable.

A line connecting the stations at life-saving stations and light-houses along the coast from Norfolk, Va., to Cape Hatteras, N. C., a distance of one hundred and thirty-seven miles, and on one of the most dangerous coasts of the United States, is in construction. It is expected that the above-mentioned lines will be completed during the present year. Attention is invited to the fact that the whole work now done in the erection of these lines, and to be done hereafter in operating them, has been done and is to be done by the officers and men of the signal-service of the Army. By no other agency could so large an amount of line so situated be constructed with the small appropriation provided.

It is not necessary to dwell upon the benefits to result from the work of the stations thus provided for. Not only will the meteoric information regularly received be greatly increased in amount and value by that taken on the sea coast and at the actual sea-level; but storm-warnings visible at a sufficient distance from shore to allow often of the proper means to be taken for safety, can be given to vessels approaching dangerous coasts, while on the occurrence of inevitable disaster assistance can be summoned at once from the neighboring life-saving stations, and information regarding the occurrence be transmitted to underwriters and others interested. Communication can readily be held by signal and telegraph with vessels of the naval and merchant marine from Washington and from other cities, and the coast will be provided with a vidette system, invaluable in time of possible war. The expense of securing these advantages to the country is comparatively trifling, the observer-sergeant of the signal-service at each station being charged with the telegraphic operations, and the necessary lines being constructed, maintained, and worked under the direction of the Chief Signal-Officer by enlisted men of the signal-service. It is to be hoped that Congress will, by future appropriation, allow the extension of this special work to the lake and sea coasts, where the life-saving and light-house systems are deemed necessary, affording thus coast-service unparalleled in the world. The thanks of the Chief Signal-Officer are due to Mr. S. I. Kimball, the chief of the Revenue-Marine Bureau, who has tendered rooms in each of the selected station-houses of the life-saving service for the observer-sergeant of the signal-service, and has provided, by the erection of a flag-staff on the new buildings, for the proper display of signals.

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At the request of Hon. Francis A. Walker, Superintendent of the United States Census, for the contribution by this office of charts to form part of the statistical atlas of the United States, the compilation of which is, by law, in his charge, such are now in course of preparation, showing, for the year 1872–'73, the following meteorological details, viz: The isobarometric lines; the number of times each direction of wind is recorded; the average hourly velocity of each wind; the maximum recorded velocity of each wind; the total annual movement of the wind; the distribution of storms or storm frequency.

While responding, when possible, to all requests made for statistical and other information, the thanks of the Chief Signal-Officer must be rendered to many scientists, in this country and abroad, for their valuable assistance. Especial acknowledgment is to be made to Prof. John Tyndall, of the Royal Institution, London; Sir William Thomson, professor of natural philosophy in the University of Glasgow; Dr. Fred. Patterson, of San Antonio, Tex.; Rev. James Rankin, D. D., president of Hobart College, Geneva, N. Y.; and Mr. M. F. Stevenson, Gainesville, Fla., have contributed regular or occasional reports of value. The agent of the Pacific Mail Steamship Company at New York has forwarded a large number of marine records on forms furnished by this office, and since July, 1872, regular monthly meteoric reports have been received from the commanding officer of the United States receiving-ship Vermont, stationed at the Brooklyn navy-yard. Capt. J. Sangster, of the bark Express, of Annapolis, Nova Scotia, has presented a log-book showing records of voyages from June, 1872, to February, 1873, and one hundred and thirty-eight logs of vessels have been collected by the observer-sergeants stationed along the Atlantic and Pacific coasts; in procuring which the sergeants at Wilmington, N. C., and San Francisco, Cal., have been most active. It is much to be regretted that so few of the forms prepared for the purpose of being filled up with reports or observations made at sea, and widely distributed, have yet been returned to this office. The accurate reports of storms on the oceans, whether passing from or advancing upon the coasts of the United States, are of much importance for study, even when not in time for immediate deductions.

An interesting contribution to meteoric knowledge, prepared by Prof. C. Abbe, assistant, from the records of the office, will be found in Paper 32, showing a chronological list of the auroras observed at the respective signal-service stations from November 11, 1870, to July 31, 1873, inclusive.

On June 12, 1871, Observer-Sergeant Frederick Meyer, Signal-Service, United States Army, was, at the special request (approved by the Secretaries of War and of the Navy) of Capt. C. F. Hall, commander of the north polar expedition, authorized by Congress, ordered to report to him for duty in connection with that expedition with a complete set of meteorological instruments and signal equipments furnished by this office. The orders and instructions of Sergeant Meyer, and a report prepared by him since his return, are included in Paper 27.

The following table, prepared by First Lieut. Robert Craig, acting signal-officer and assistant, gives the lowest observed readings of the low barometers, with number of areas traced for each month, from October 1, 1872, to September 30, 1873, inclusive:

Oct.,	1872, eight areas of low barometer, varying from	29.35 to 29.85.
Nov.,	1872, nine areas of low barometer, varying from	29.08 to 29.74.
Dec.,	1872, twelve areas of low barometer, varying from	29.17 to 29.93.
Jan.,	1873, ten areas of low barometer, varying from	29.07 to 29.66.

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Feb., 1873, nine areas of low barometer, varying from ..... 29.04 to 29.49.
March, 1873, eleven areas of low barometer, varying from ..... 28.80 to 29.52.
April, 1873, ten areas of low barometer, varying from ..... 29.27 to 29.62.
May, 1873, nine areas of low barometer, varying from ..... 29.28 to 29.63.
June, 1873, ten areas of low barometer, varying from ..... 29.26 to 29.95.
July, 1873, thirteen areas of low barometer, varying from ..... 29.44 to 29.68.
Aug., 1873, twelve areas of low barometer, varying from ..... 29.49 to 29.79.
Sept., 1873, eleven areas of low barometer, varying from ..... 29.21 to 29.76.

The charts appropriate to these areas will be found among thos attached to Paper 25.

As the severe storms of the 14th August, in New Jersey, and the 24th and 25th of the same month, in Nova Scotia, were, from the want of stations at requisite points, and also from temporary failure of the telegraph, not fully presented for study in the regular tri-daily maps of this office, and yet possessed features worthy of special attention, Professor Abbe, assistant, was directed to collate in reference to it such information as could be obtained from the logs of vessels and similar sources. The detailed results of his work are given in Paper 28.

Both of these storms had their origin and much of their course beyond the limits of the United States, and beyond the scope of the observations taken at the regularly-established stations. The presence of similar cyclones passing near the coasts of the United States, and which are likely to be encountered by vessels sailing from the sea-coast ports, will, it is hoped, be recognizable by the observations to be taken at the series of stations now in process of establishment at the life-saving stations along the coasts. The telegraphic communication to be established with the Bermuda Islands will be of utility in this connection.

A valuable report by Prof. I. A. Lapham upon disasters to shipping upon the great American lakes, from the 1st of January to the 1st of September, 1873, is hereto annexed, as Paper 29.

On May 26, last, Observer-Sergeant James Mackintosh, Signal-Service, United States Army, was ordered to proceed to the district traversed by the violent tornado which passed through Iowa and Illinois on May 22, and to make a full report of its origin, path, and attendant phenomena. (Paper 30.)

The storm of April 14–18 presented features of peculiar interest. A description of the storm, with charts of its course as traced, prepared by Observer-Sergeant Theodore Smith, Signal-Service, United States Army, is herewith, (Paper 31.)

The stations on the sea and lake coasts, especially designated as cautionary-signal stations, at which the display of signals is ordered for the benefit of commerce, are the following, thirty in number, viz: New Orleans, Mobile, Jacksonville, Savannah, Charleston, Wilmington, N. C., Norfolk, Cape May, Baltimore, New York, New Haven, New London, Wood's Hole, Boston, Portland, Me., Eastport, Oswego, Rochester, Buffalo, Erie, Cleveland, Toledo, Detroit, Alpena, Grand Haven, Chicago, Milwaukee, Escanaba, Marquette, and Du Luth.

During the year orders have been issued for the display of the cautionary signals, described in previous reports, in anticipation of eighty-eight probable storms. In seventy cases the storms anticipated manifested their effects at one or more of the stations at which the signals were ordered; the signals thus giving warning to shipping and other interests which would otherwise, perhaps, have been dangerously exposed.

The order for each cautionary signal is special, and issued under the following rules: The display is ordered at a signal-station whenever the officer in charge of that duty considers it probable that there will be experienced within twelve hours at that station, or within one hundred

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miles thereof, and on any navigable stream, a wind dangerous to navigation. Dangerous winds on the navigable waters are, for the order in question, considered to be those reaching a velocity of twenty-five miles per hour, as registered by the anemometer on the land, provided that the temperature be decidedly above freezing. For temperature decidedly below freezing, and for foggy weather, winds are to be considered dangerous when the velocities are registered so low as twenty miles. The direction of the wind is not taken into consideration for the present. If at the tri-daily report next following the ordering of the signals it appears that the danger is not so imminent as was apprehended, the signal is to be ordered down. It is not to be displayed for an indefinitely long time. The immediate area referred to by the respective cautionary signals is as defined on the map of cautionary-signal stations at the office of the Chief Signal-Officer, which may be generally described as a circle, with a radius of one hundred miles, the station being the center. When any warning is given for points upon the lakes, the other lake-stations are notified of the warning. Each station is also notified when the signals are ordered down at any other station.

As in preceding years, where there has been error of display it has been on the side of caution. While on occasions the signals ordered may have proved unnecessary, and are so reported unverified, on the other hand no extensive storm has occurred in the regions included in the system of cautionary signals without warnings of its approach having been displayed in at least part of its course. While neither the indications upon which signals are certainly to be displayed, nor modes of verifying the display, have been as yet accurately arrived at, the public confidence exhibited in the heed given to the warnings when they are shown has evidenced their general utility.

Pursuant to the arrangements with Prof. G. T. Kingston, of Toronto, chief of the Dominion Meteorological Bureau, to which reference was made in the last annual report, forty dispatches, giving warning of approaching storms, have been sent to the Bureau under his charge.

The geographical divisions and subdivisions of the United States in reference to which meteoric phenomena are considered, and which are referred to in the preparation of Synopses and Probabilities, are as follows:

DIVISIONS.

1. Pacific States.
2. Extreme Northwest.
3. Northwest.
4. Southwest.
5. Southern States.
6. Lake Region.
7. Middle States.
8. New England States.
9. Saint Lawrence Valley.

SUBDIVISIONS.

1. Missouri Valley.
2. Upper Mississippi Valley.
3. Lower Mississippi Valley.
4. Ohio Valley.
5. Western Gulf.
6. Eastern Gulf.
7. Upper Lakes.
8. Lower Lakes.
9. South Atlantic.
10. Middle Atlantic.

A chart illustrating the territorial limits of each of these divisions and subdivisions is hereto attached. (Paper 32.)

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The percentage of verification for each geographical division or subdivision named has been for the year as follows:

New England	81.50	Ohio Valley	76.42
Middle States	81.17	Western Gulf	74.40
South Atlantic	79.92	Upper Lakes	75.25
Lower Lakes	78.90	Northwest	74.00
Eastern Gulf	77.16		

These percentages have been obtained by a careful analysis of the deductions as announced each day for each geographical division or subdivision mentioned, and the comparison of them with the facts subsequently obtained from the weather-reports for that date. A numerical value is given each item, as temperature, pressure, wind-direction, &c., mentioned in each deduction and verified; the sum of these values divided by the number of deductions exhibiting the average of verification for any period with approximate accuracy.

The aggregate percentage of verification ranges higher in New England, the Middle States, the South Atlantic, and the Lower Lake Region, than in the West, Southwest, and Northwest.

With a more rigid and scrutinizing mode of calculation than was before adopted, the percentages have improved upon those of the preceding year; the analysis of the year's work indicating at once the wisdom of increasing the number of stations and the regions in which they should be established. The percentage of verifications for each district exhibits a proportion to the number of stations from which reports having reference to the atmospheric conditions in the district under consideration have been received. It is thus to a certain extent mathematically demonstrated that the rules applied for the deductions of the forecasts are practically correct, and that with increasing facilities the percentage of verifications can be annually increased. It is not known that a demonstration of this character has been before attained.

In pursuance of invitations issued by the Austrian government, a congress of persons charged with meteoric duties was convened in Vienna in the month of September last, at which the Chief Signal-Officer was present under instructions from the Secretary of War. The proceedings of this congress cannot fail to be of importance as tending to establish a uniformity in methods of conference and of action. The opportunities it afforded of personal meeting and observation among the representatives from different countries must be productive of beneficial effects. The concurrence of the congress by a unanimous vote in a proposition to the effect that it is desirable, with a view to their exchange, that at least one uniform observation of such character as to be suitable for the preparation of synoptic charts should be taken and recorded daily and simultaneously at as many stations as practicable throughout the world, is regarded as of especial importance in reference to duties of the character of those now undertaken by the United States.

With the study of synoptic charts, the field of which may, with proper co-operation, on land and at sea, be made almost world-wide, there is reason to anticipate the discovery of facts relating to atmospheric phenomena and to the origin and movement of storms not hitherto recognized. It is to such co-operation effort will be directed. It is gratifying to state, in this connection, that arrangements have already been made with the meteorological offices at St. Petersburg, London, and Constantinople to commence the exchange by mail on January 1, 1874, of one daily simultaneous report taken over the vast territorial extent of the Russian and Turkish Empires, the British Islands, and the United States. (Paper 33.) The co-operation of the systems of other nations, of scientific associations, societies, and individuals is sought for and ex-

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pected. With a work in view, not for the sole benefit of any country or people, but reaching to the good of all, there is ground to hope a world's assistance.

In the review of the year's duties there is found encouragement for the future. While the office has had to encounter many difficulties, the details of which would be out of place in this report, there has been the assurance that its labors have not been without a value generally recognized. The office acknowledges, as in preceding years, the general support of the popular opinion, of scientific men, of the press, and of the War Department. Without this aid the work achieved would have been impossible. Whenever errors have occurred, it has been recognized as inevitable that some must occur in the present condition of science. Success has been generously commended. The evidences of interest and progress in similar duties are extending in all countries. Their utility is no longer questioned, and effort at home and abroad turns only toward their development. The field becomes world-wide with the promise of results a few years ago hardly to be hoped for. There will be needed time and labor; there must often be disappointment; but the public good to follow is certain.

I am, sir, very respectfully, your obedient servant,

ALBERT J. MYER,

Brig. Gen., (Bvt. Ass'g'd,) Chief Signal-Officer, U. S. A.

PAPER 1.

RECORD OF SIGNAL-CAMP OF INSTRUCTION, FORT WHIPPLE, VA.

Officers instructed during the year ending September 30, 1873.

Name.	Rank and corps.	Reported for instruction.	Relieved from instruction.	Remarks.
David J. Gibbon ...	Second lieutenant Ninth Cavalry.	Sept. 4, 1872	Dec. 20, 1872	Completed full course in signaling, telegraphy, and meteorology.
Eugene O. Fechét..	Second lieutenant Second Artillery.	Dec. 4, 1872	Dec. 26, 1872	Relieved before completing full course of instruction.
W. B. Weir	Second lieutenant Fifth Artillery.	June 16, 1873	.....	Still under instruction.
F. C. Grugan	First lieutenant Second Cavalry.	Sept. 27, 1873	.....	Do.
George S. Grimes ..	First lieutenant Second Artillery.	Sept. 4, 1873	.....	Reviewing course.
C. C. Wolcott	First lieutenant Third Artillery.	Sept. 4, 1873	.....	Do.

PAPER 2.

Amount of field-practice had by each officer.

Name.	Rank and corps.	Number of days flag-practice was had.	Number of nights torch-practice was had.	Remarks.
David J. Gibbon ...	Second lieutenant Ninth Cavalry .	14	6	
Eugene O. Fechét..	Second lieutenant Second Artillery.	.....	.....	Study of Manual of Signals, Wand Practice, &c., for twelve days.
W. B. Weir	Second lieutenant Fifth Artillery .	16	7	Still under instruction.
F. C. Grugan	First lieutenant Second Cavalry ..	.....	.....	Do.
George S. Grimes ..	First lieutenant Second Artillery	.....	.....	Reviewing course.
C. C. Wolcott	First lieutenant Third Artillery...	.....	.....	Do.

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PAPER 3.

Table showing the instruction of candidates for the grade of observer-sergeant from October 1, 1872, to September 30, 1873.

Name.	Instruction commenced.	Date of examination and promotion.	Remarks.
Richard Williams		Oct. 1, 1872	In charge of station at La Crosse, Wis. Reduced August 12, 1872; re-appointed sergeant October 1, 1872.
David W. Harnett	Sept. 19, 1872	Oct. 19, 1872	Reduced to the ranks for misconduct; deserted, and now in confinement at Fort Whipple, Va.
James H. Marah	Aug. 26, 1872	do	In charge of station at Keokuk, Iowa.
P. Filbert Nagle	Sept. 1, 1872	Nov. 1, 1872	On duty at office of the Chief Signal-Officer.
Charles H. Sprenger	do	do	On duty at Fort Whipple, Va.
Michael F. Tighe	Mar. —, 1872	do	On duty at New York City.
Timothy O'Neil	Sept. 23, 1872	Nov. 15, 1872	In charge of station at New London, Conn.
William Black	Sept. 30, 1872	do	In charge of station at New Haven, Conn.
James K. P. Purdum	Oct. 2, 1872	do	In charge of station at Wood's Hole, Mass.
Fred. M. Clarke		Dec. 11, 1872	Discharged the service September 26, 1873.
James H. Garrard		do	Reduced March 12, 1872; re-appointed December 11, 1872; reduced September 1, 1873. On duty at Fort Whipple, Va.
Joseph E. Cook	Nov. 1, 1872	Dec. 16, 1872	In charge of station at Toledo, Ohio.
Sydney Powell	do	do	In charge of station at Pembina, Dak.
Fred. Z. Gosewisch	Oct. 31, 1872	do	In charge of station at Wytheville, Va.
Henry U. Jones	Nov. 8, 1872	Dec. 28, 1872	In charge of station at Lynchburgh, Va.
William H. Colesberry	Nov. 16, 1872	do	In charge of station at Buffalo, N. Y.
Edward W. McGann	do	do	In charge of station at Norfolk, Va.
Richard McLaughlin	Nov. 18, 1872	do	In charge of station at Jacksonville, Fla.
Edward A Lewis	Dec. 4, 1872	Feb. 7, 1873	On duty at Fort Whipple, Va.
William Finn	Dec. 15, 1872	do	In charge of station at Detroit, Mich.
William C. W. Shreck	Dec. 27, 1872	do	In charge of station at Eastport, Me.
Samuel P. Ruthven	Dec. 7, 1872	do	In charge of station at Davenport, Iowa.
Otto Schütze	Dec. 26, 1872	Feb. 8, 1873	In charge of station at Wilmington, N. C.
Leroy E. Sebree	Dec. 8, 1872	do	On duty at office of the Chief Signal-Officer.
Will Stromberger	Jan. 11, 1873	Mar. 8, 1873	In charge of station at Cleveland, Ohio.
Newton Phelps	do	do	In charge of station at Yankton, Dak.
Edwin F. McComas	Jan. 14, 1873	do	In charge of station at Erie, Pa.
Thomas A. Taylor	Jan. 3, 1873	do	In charge of station at Fort Gibson, Ind. T.
Edward B. Robbins	Jan. 18, 1873	Mar. 11, 1873	On duty at office of the Chief Signal-Officer.
Herman M. Ludwig	Jan. 22, 1873	do	In charge of station at Milwaukee, Wis.
Wyllys A. Chapman	Jan. 18, 1873	do	Awaiting orders at Fort Whipple, Va.
Powell G. Deitz	Feb. 9, 1873	Apr. 8, 1873	In charge of station at Boston, Mass.
John D. M. Fee	Feb. 12, 1873	do	In charge of station at Morgantown, W. Va.
Hugh R. Stockman	Mar. 7, 1873	May 1, 1873	On duty at office of the Chief Signal-Officer.
Frank H. Wash	do	May 24, 1873	On duty at Fort Whipple, Va.
David C. Ralston	Apr. 5, 1873	do	On duty at office of the Chief Signal-Officer.
George Onslow	Apr. 28, 1873	June 27, 1873	Temporarily in charge of station at Yankton, Dak.
Bennett C. Anderson	Apr. 29, 1873	do	In charge of station at Key West, Fla.
James M. Watson	Apr. 26, 1873	do	On duty at Cincinnati, Ohio.
Joseph F. Tenney	Apr. 23, 1873	do	Awaiting orders at Fort Whipple, Va.
William O. Bailey	Apr. 25, 1873	Aug. 11, 1873	On duty at Saint Louis, Mo.
Thomas Cleary	May 14, 1873	do	In charge of station at Omaha, Nebr.
Ambrose D. Woolcott	May 26, 1873	do	In charge of station at Lake City, Fla.
William McGillivray	June 11, 1873	Sept. 9, 1873	In charge of station at Fort Benton, Mont.
Jesse W. Craig	June 15, 1873	do	In charge of station at Louisville, Ky.
Thomas S. Collins	June 26, 1873	do	Awaiting orders at Fort Whipple, Va.
Joseph B. Campbell	Jan. 28, 1873	Sept. 25, 1873	In charge of station at Virginia City, Mont.
William Ramsay	July 7, 1873	do	In charge of station at Fort Sully, Dak.
Lawrence Dunne	do	do	Awaiting orders at Fort Whipple, Va.
William D. Wright	Dec. 5, 1872		Ordered to office of Chief Signal-Officer for duty before completing course. Presented himself for examination, but failed to pass.
Edward Moran	Dec. 26, 1872		Ordered to office of Chief Signal-Officer before completing course.
Mark Foley	Jan. 30, 1873		Failed to pass examination. Now on duty as assistant at Keokuk, Iowa.
Maurice Neligan	Feb. 22, 1873		Ordered to Philadelphia, Pa., for duty before completing course.
James Courtney	Apr. 14, 1873		Ordered to office of Chief Signal-Officer before completing course.
Simon S. Bassler	July 10, 1873	Sept. 29, 1873	Passed examination and awaiting promotion.
Theodore C. Taylor	July 14, 1873	do	Do.
Daniel O'Leary	July 21, 1873	do	Do.
John R. Williams	Aug. 7, 1873		Still under instruction.
John O. Barnes	Aug. 8, 1873		Do.
James Mitchell	Aug. 9, 1873	Sept. 29, 1873	Passed examination and awaiting promotion.

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Table showing the instruction of candidates for the grade of observer-sergeant, &c.—Continued.

Name.	Instruction commenced.	Date of examination and promotion.	Remarks.
George W. McKee	Aug. 21, 1873		Still under instruction.
Sherman B. Lum	....do		Do.
Allen M. Geissinger	Aug. 27, 1873		Do.
William Stein	Sept. 6, 1873		Do.
Edwin Booth	Sept. 8, 1873		Do.
Henry Bessant	Sept. 10, 1873		Do.
Dennis M. Kennedy	....do		Do.

PAPER 4.

Enlisted men instructed for the position of assistants to observer-sergeants from October 1, 1872, to September 30, 1873.

Name.	Placed under instruction for assistant.	Reported qualified as assistant.	Ordered on station.	Remarks.
Thomas Cleary	Sept. 13, 1872	Oct. 7, 1872	Oct. 25, 1872	Promoted to the rank of sergeant. In charge of station at Omaha, Nebr.
Joseph F. Tenney	Sept. 26, 1872	Oct. 22, 1872	Nov. 1, 1872	Promoted to the rank of sergeant. Awaiting orders at Fort Whipple, Va.
William O. Belt	Sept. 17, 1872	Oct. 22, 1872	Nov. 1, 1872	Died of yellow fever at Galveston, Tex., September 18, 1873.
Julius F. Beyer	Sept. 28, 1872	Oct. 22, 1872	Nov. 1, 1872	Accidentally killed at Leavenworth, Kans., while in the discharge of his duty.
John McGuire	Aug. 17, 1872	Sept. 11, 1872	Oct. 25, 1872	Ordered to Fort Whipple, Va., for misconduct.
Joseph B. Campbell	Aug. 23, 1872	Sept. 21, 1872	Oct. 25, 1872	Promoted to the rank of sergeant. In charge of station at Virginia City, Mont.
Samuel C. Pearce	Oct. 5, 1872	Nov. 7, 1872		Discharged the service of the United States November 13, 1872.
John B. Yeaman	Oct. 5, 1872	Dec. 6, 1872		Discharged the service of the United States December 19, 1872.
Adonirum J. Berry	Oct. 4, 1872	Nov. 7, 1872	Nov. 18, 1872	On duty as assistant at Escanaba, Mich.
James E. Cairns	Oct. 4, 1872	Nov. 7, 1872	Nov. 12, 1872	Ordered to Fort Whipple, Va., for misconduct.
Alex. C. J. Gustafson	Oct. 11, 1872	Nov. 7, 1872	Nov. 18, 1872	Do.
Herbert M. Wells	Oct. 11, 1872	Nov. 7, 1872	Nov. 25, 1872	On duty as assistant at Rochester, N. Y.
Allen M. Geissinger	Oct, 11, 1872	Nov. 7, 1872	Nov. 25, 1872	Ordered to Fort Whipple, Va., for promotion.
Thomas S. Collins	Oct. 12, 1872	Nov. 7, 1872	Nov. 25, 1872	Promoted to the rank of sergeant. Awaiting orders at Fort Whipple, Va.
Alexander Ross	Oct. 12, 1872	Nov. 7, 1872	Dec. 7, 1872	Deserted while on duty as assistant at Saint Paul, Minn.
Edward F. Brady	Oct. 21, 1872	Dec. 7, 1872	Dec. 10, 1872	On duty as assistant at Cairo, Ill.
Theodore C. Taylor	Oct. 28, 1872	Dec. 7, 1872	Dec. 10, 1872	Ordered to Fort Whipple, Va., for promotion.
John R. Williams	Nov 8, 1872	Jan. 11, 1873	Jan. 13, 1873	Do.
Daniel O'Leary	Nov. 8, 1872	Dec. 14, 1872	Dec. 16, 1872	Do.
Sherman B. Lum	Nov. 8, 1872	Dec. 14, 1872	Dec. 16, 1872	Do.
Jesse W. Craig	Nov. 16, 1872	Dec. 14, 1872	Dec. 16, 1872	Promoted to the rank of sergeant. In charge of station at Louisville, Ky.
Charles Dill	Nov. 16, 1872	Dec. 14, 1872	Jan. 21, 1873	On duty as assistant at Portland, Me.
Jacob M. Frantz	Nov. 16, 1872		May 21, 1873	On duty as assistant at Detroit, Mich.
Chris. J. Costello	Nov. 16, 1872	Jan. 11, 1873	Jan. 21, 1873	On duty as assistant at New London, Conn.
Edwin K. Moore	Nov. 25, 1872	Dec. 14, 1872	Dec. 23, 1873	On duty as assistant at Punta Rassa, Fla.
John O. Barnes	Dec. 6, 1872	Jan. 3, 1873	Jan. 3, 1873	Ordered to Fort Whipple, Va., for promotion.
George C. Coyle	Dec. 13, 1872	Jan. 16, 1873	Feb. 4, 1873	Ordered to Fort Whipple, Va., for misconduct.
Dennis M. Kennedy	Dec. 13, 1872	Jan. 11, 1873	Jan. 21, 1873	Ordered to Fort Whipple, Va., for promotion.
Thomas Jones	Dec. 13, 1872	Jan. 11, 1873	Mar. 18, 1873	On duty as assistant at Leavenworth, Kans.
Emile T. Carvalho	Dec. 13, 1872	Jan. 11, 1873	Jan. 13, 1873	On duty as assistant at Norfolk, Va.
James Mitchell	Dec. 21, 1872	Jan. 16, 1873	Apr. 10, 1873	Ordered to Fort Whipple, Va., for promotion.
Simon S. Bassler	Dec. 23, 1872	Jan. 16, 1873	Jan. 21, 1873	Do.
Edwin Booth	Dec. 27, 1872	Jan. 16, 1873	Jan. 21, 1873	Do.

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Enlisted men instructed for the position of assistants to observer-sergeants, &c.—Continued.

Name.	Placed under instruction for assistant.	Reported qualified as assistant.	Ordered on station.	Remarks.
William D. Halliday	Jan. 6, 1873	Feb. 8, 1873	Feb. 10, 1873	On duty as assistant at Indianapolis, Ind.
Addison Slamm	Jan. 6, 1873	.....	.....	On duty as assistant at Duluth, Minn.
George W. Elmer	Jan. 6, 1873	.....	.....	On duty at office of Chief Signal-Officer.
Milton M. Lewis	Jan. 11, 1873	Feb. 21, 1873	Feb. 21, 1873	On duty as assistant at Key West, Fla.
Henry Bessant	Jan. 23, 1873	Feb. 21, 1873	Feb. 21, 1873	Ordered to Fort Whipple, Va., for promotion.
Winfield S. Popple	Jan. 25, 1873	Feb. 21, 1873	Mch. 14, 1873	On duty as assistant at Chicago, Ill.
John D. Sumet	Feb. 8, 1873	Mar. 3, 1873	Mch. 14, 1873	On duty as assistant at Memphis, Tenn.
Edward H. Canfield	Feb. 8, 1873	.....	Feb. 12, 1873	Ordered to Fort Whipple, Va., for misconduct. Discharged.
Aloise Dunhauser	Feb. 8, 1873	Mar. 3, 1873	Apr. 1, 1873	On duty as assistant at Milwaukee, Wis.
Edgar McGovern	Feb. 8, 1873	Mar. 3, 1873	Mch. 14, 1873	On duty as assistant at New Orleans, La.
Charles A. Stone	Feb. 12, 1873	.....	.....	On duty at office of Chief Signal-Officer.
Mark Downing	.....	.....	Mar. 1, 1873	Ordered to Fort Whipple, Va., for misconduct.
Joseph E. Mayhew	Feb. 27, 1873	.....	Apr. 3, 1873	Do.
Abraham B Hiltman	Mar. 3, 1873	Apr. 12, 1873	May 7, 1873	Do.
William McElroy	Feb. 12, 1873	.....	Apr. 14, 1873	Reduced from sergeant March 24, 1873. On duty as assistant at Toledo, Ohio.
George B. Till	Mar. 14, 1873	.....	.....	On duty at office of Chief Signal-Officer.
John J. Nanry	Mar. 14, 1873	May 3, 1873	May 7, 1873	On duty as assistant at Charleston, S. C.
Thomas S. Eastlack	Mar. 17, 1873	May 3, 1873	May 14, 1873	Ordered to Fort Whipple, Va., for misconduct.
Malcolm H. Perry	Apr. 9, 1873	.....	May 8, 1873	On duty as assistant at Cheyenne, Wyo.
Barnet E. Light	Apr. 9, 1873	May 31, 1873	June 3, 1873	On duty as assistant at Davenport, Iowa.
George H. Rohe	Apr. 9, 1873	.....	May 14, 1873	On duty as assistant at Chicago, Ill.
William Seely	Apr. 12, 1873	.....	May 24, 1873	Died at base of Mount Washington, N. H., July 2, 1873.
James H. Smith, (1st)	Apr. 12, 1873	.....	May 28, 1873	Ordered to Fort Whipple, Va., for incapacity.
William J. Parker	Apr. 16, 1873	.....	.....	On duty at office of Chief Signal-Officer.
George W. Schlosser	Apr. 21, 1873	June 14, 1873	June 16, 1873	Discharged the service of the United States July 12, 1873.
George H. Crane	Apr. 21, 1873	.....	May 24, 1873	On duty as assistant at Buffalo, N. Y.
James A. Barwick	Apr. 25, 1873	.....	May 24, 1873	On duty as assistant at Saint Paul, Minn.
James H. Smith, (2d)	Apr. 25, 1873	.....	May 24, 1873	On duty as assistant at Pike's Peak, Colo.
Herrmann Frey	Apr. 25, 1873	May 31, 1873	June 3, 1873	On duty as assistant at Savannah, Ga.
Francis Anderson	Apr. 25, 1873	.....	June 16, 1873	On duty as assistant at Baltimore, Md.
Samuel C. Emery	May 5, 1873	May 31, 1873	June 9, 1873	On duty as assistant at Chicago, Ill.
Charles L. Joscelyn	May 5, 1873	June 14, 1873	June 16, 1873	On duty as assistant at Vicksburgh, Miss.
Charles M. Hobbs	May 12, 1873	.....	June 10, 1873	On duty as assistant at Cincinnati, Ohio.
Robert Strain	May 14, 1873	.....	.....	On duty at Detroit, Mich.
Joseph Lambden	May 17, 1873	June 28, 1873	July 8, 1873	Ordered to Fort Whipple, Va., for misconduct.
William J. Evans	May 17, 1873	June 21, 1873	June 23, 1873	On duty as assistant at Philadelphia, Pa.
John V. Brown	May 17, 1873	June 14, 1873	July 2, 1873	Ordered to Fort Whipple, Va., for misconduct.
John A. Cody	May 20, 1873	June 21, 1873	July 1, 1873	On duty as assistant at Lake City, Fla.
Edward D. Holbrook	May 19, 1873	June 28, 1873	July 1, 1873	On duty as assistant at Boston, Mass.
Dwight D. Stansell	May 24, 1873	June 30, 1873	July 7, 1873	On duty as assistant at Nashville, Tenn.
Isaac A. Reed	May 27, 1873	June 30, 1873	July 7, 1873	On duty as assistant at Pittsburgh, Pa.
Benjamin M. Pursell	May 31, 1873	July 12, 1873	July 28, 1873	On duty as assistant at Buffalo, N. Y.
Alfred P. Guthrie	May 31, 1873	July 12, 1873	July 26, 1873	Awaiting orders at Fort Whipple, Va.
Ned Warren	May 31, 1873	July 12, 1873	July 30, 1873	On duty as assistant at Louisville, Ky.
Edward Bird	June 3, 1873	July 26, 1873	July 30, 1873	On duty as assistant at Oswego, N. Y.
John McCann	June 7, 1873	July 26, 1873	July 29, 1873	On duty asassist ant at Omaha, Nebr.
Henry L'Esterre	June 7, 1873	July 26, 1873	Aug. 1, 1873	On duty as assistant at Erie, Pa.

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Enlisted men instructed for the position of assistants to observer-sergeants, &c.—Continued.

Name.	Placed under instruction for assistant.	Reported qualified as assistant.	Ordered on station.	Remarks.
Fred De Rosher	June 7, 1873	Aug. 2, 1873	Aug. 5, 1873	On duty as assistant at Moun Washington, N. H.
Leander A. Lemman	June 14, 1873	July 26, 1873	Aug. 12, 1873	On duty as assistant at Pike's Peak, Colo.
John C. Hanscom	June 14, 1873	July 26, 1873	Sept. 2, 1873	On duty as assistant at Cincinnati, Ohio.
Michael L. Landers	June 14, 1873	July 26, 1873	July 28, 1873	On duty as assistant at Cleveland, Ohio.
Charles Fryer	June 14, 1873	Sept. 6, 1873	Sept. 8, 1873	On duty as assistant at Baltimore, Md.
Pliny M. Hough	June 18, 1873			On duty at office of Chief Signal-Officer.
John C. Senger	June 20, 1873	July 26, 1873	Aug. 12, 1873	On duty as assistant at Wilmington, N. C.
Walter F. Crane	June 20, 1873	Aug. 16, 1873	Aug. 27, 1873	On duty as assistant at Boston, Mass.
John G. Lynch	June 20, 1873	Aug. 2, 1873	Aug. 5, 1873	On duty as assistant at Shreveport, La.
Oscar F. Dodge	June 20, 1873	Aug. 2, 1873		On duty at office of Chief Signal-Officer.
Charles Howard	June 27, 1873	Aug. 30, 1873	Sept. 2, 1873	On duty as assistant at Detroit, Mich.
Cyrus Luce	June 27, 1873		Sept. 13, 1873	On duty as assistant at Saint Louis, Mo.
Charles A. Smith	June 27, 1873	Aug. 30, 1873	Sept. 2, 1873	On duty as assistant at Mobile, Ala.
Edward W. Boutelle	July 1, 1873	Aug. 9, 1873	Aug. 12, 1873	On duty as assistant at Pike's Peak, Colo.
John Kabernagle	July 5, 1873		Sept. 2, 1873	On duty as assistant at Philadelphia, Pa.
Alaric S. Embree	July 5, 1873		July 30, 1873	In arrest at Fort Whipple, Va.
Charles T. Greer	July 21, 1873	Sept. 27, 1873		Awaiting orders at Fort Whipple, Va.
J. J. Weinberg	July 21, 1873	Sept. 13, 1873		Do.
John F. Fitzgerald	July 21, 1873		Sept. 12, 1873	On duty as assistant at Saint Louis, Mo.
William H. Ray	July 21, 1873	Sept. 13, 1873		Awaiting orders at Fort Whipple, Va.
W. E. Hutchinson	July 26, 1873	Sept. 27, 1873		Do.
H. W. Tibbetts	July 26, 1873			Dropped from instruction.
Charles M. Brown	July 26, 1873		Sept. 26, 1873	On duty as assistant at Portland, Oreg.
Eugene DuVere	July 26, 1873	Sept. 27, 1873		Awaiting orders at Fort Whipple, Va.
Charles V. Appel	July 26, 1873	Sept. 27, 1873	Sept. 29, 1873	On duty as assistant at New Orleans, La.
Lloyd Prather	Aug. 2, 1873		Aug. 13, 1873	On duty at Saint Louis, Mo.
Marion M. Sickler	Aug. 2, 1873	Sept. 27, 1873		Awaiting orders at Fort Whipple, Va.
Sidney J. Bronson	Aug. 2, 1873			Still under instruction.
Pierson R. Murphey	Aug. 15, 1873			Do.
George H. Smith	Aug. 15, 1873			Do.
Ira W. Birt	Aug. 15, 1873			Do.
J. T. Minchin	Aug. 15, 1873			Do.
L. A. Welsh	Aug. 21, 1873			Do.
James H. Brice	Aug. 21, 1873			Do.
Robert Reeder	Aug. 21, 1873			Do.
C. A. Ray	Aug. 25, 1873			Do.
John Moll	Aug. 30, 1873			Do.
Samuel W. Naylor	Aug. 30, 1873			Do.
Hermann Voss	Aug. 30, 1873			Do.
George Feller	Aug. 30, 1873			Do.
Isaac R. Birt	Sept. 6, 1873			Do.
John W. A. Kempers	Aug. 30, 1873			On duty at office of Chief Signal-Officer.
H. S. Montague	Sept. 11, 1873			Still under instruction.
Charles Mays	Sept. 11, 1873			Do.
Thomas Murray	Sept. 15, 1873			Do.
Rupert R. Rodgers	Sept. 15, 1873			Do.
Cyrus Cramer	Sept. 23, 1873			Do.

PAPER 5.

WAR DEPARTMENT, OFFICE OF THE CHIEF SIGNAL-OFFICER,
Washington, D. C., June 7, 1873.

[Circular No. 17.]

This circular is published for the information of those desiring to enter the signal-service, United States Army, with reference to its field duties, including field-signals and electric telegraph, as distinguished from the full duties of that service, which include the observation and report of storms and display of cautionary signals, &c.

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1. Entrance into this service in all cases is by enlistment as a private soldier in the Regular Army of the United States, the pay, quarters, allowances, and duties being, in the first instance, and unless changed after instruction, detail, or promotion, those of a private soldier in the signal-service, United States Army. All men enlisted are drilled in the use of arms and disciplined in the duties of soldiers. The term of service is five years, unless sooner discharged. The Secretary of War has power to grant discharges, which this office is authorized to promise when applied for on proper grounds and at times when no special injury to the service would result therefrom; but as a rule no application for discharge will be favorably entertained until after two years of faithful service, and not then, except as above specified. With the single exception that men enlisting for the signal-service will not be transferred to any other branch of the Army, no promise will be given which can alter or affect the usual terms of enlistment. The service, while strictly military, is also probationary, with opportunities for advancement, depending mainly on the good conduct and capacity of each individual.

Married men and those under twenty-one or over forty years of age are not enlisted. The standard height is five feet four inches and upward.

2. Applicants can present themselves in person to the officer in charge at Fort Whipple, Va., near Washington, D. C., or to the observer-sergeants of the signal-service at the following points, viz: New York, Philadelphia, Baltimore, Cincinnati, Saint Louis, Boston, Buffalo, Chicago, Cleveland, Detroit, Indianapolis, and Louisville, which sergeants are ordered to present proper applicants to the recruiting officers of the United States Army in those cities. *No promise or statement different from this circular, made by any one, is authorized, or will be allowed to affect the terms of enlistment of any recruit.* Recruits enlisted at Fort Whipple, or at the above-mentioned cities, are placed on duty in the first instance at Fort Whipple or at such other stations where their services may be made available. They will not be precluded from eventual advancement to the full duties of the signal-service, and promotion, in case they prove fit and worthy, but will not be considered as included, upon their enlistment, in the regulations made for those recruits who may have been enlisted with special reference to the full duties above referred to. They may, however, be subject to detail on any of the duties of the signal-service in the discretion of higher authority.

3. The pay and allowances of either a sergeant or private vary according to the character and place of the duties and the length of the service of each individual. The following table exhibits the average amount per month for five years, according to the present law:

Rank.	When at Fort Whipple, Va., or at a military post.	When on station.	When at this office.
Sergeants	$31 87	$74 68	$92 49
Privates	17 18	57 99	88 45

Of the above amounts $1 per month in the third year, $2 per month in the fourth year, and $3 per month in the fifth year, are retained, and will not be paid until final discharge after faithful service. An allowance for clothing, averaging $3.02 per month for sergeants and $2.98 for privates, is also included in the above, which, if clothing is not drawn in kind, is also retained until discharged. When at Fort Whipple, both sergeants and privates receive quarters and rations, and at all places are, when ill, provided with medical attendance and medicines.

4. Applications being frequently made for enlistment in this service, conditioned upon the applicant being placed upon some specified duty or stationed at a particular place, it is to be clearly understood that no such qualification of the contract of enlistment will be allowed or considered, the wants of the service, which cannot be known in advance, regulating all details of duty.

By order of the Chief Signal-Officer of the Army:

GARRICK MALLERY,

Captain and Brevet Lieut.-Col. U. S. A., Acting Signal-Officer and Assistant.

PAPER 6.

WAR DEPARTMENT, OFFICE OF THE CHIEF SIGNAL-OFFICER,
Washington, D. C., July 1, 1873.

[Circular No. 18.]

This circular is published for the information of those desiring to enter the service of the United States with reference to the full duties of the signal-service, including

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not only field-signals and telegraphy, but also the observation and report of storms, by telegraph and signal, and display of cautionary signals, for the benefit of commerce and agriculture, under the joint resolution of Congress approved February 9, 1870, the acts of Congress approved June 10, 1872, and March 3, 1873, and the authorization of the Secretary of War, and for such other duties as may be required in connection therewith.

1. Entrance into this service in every case is by enlistment as a private soldier in the Regular Army of the United States, the pay, quarters, allowances, and duties being, in the first instance, and unless changed after instruction, detail, or promotion, as hereinafter explained, those of a private soldier in the signal-service, United States Army. All men enlisted are drilled in the use of arms and disciplined in the duties of soldiers. The term of service is five years, unless sooner discharged. The Secretary of War has power to grant discharges, which this office is authorized to promise when applied for on proper grounds, and at times when no special injury to the service would result therefrom; but as a rule no application for discharge will be favorably entertained until after two years of faithful service, and not then, except as above specified. With the single exception that men enlisting for the signal-service will not be transferred to any other branch of the Army, no promise will be given which can alter or affect the usual terms of enlistment. The service, while strictly military, is also probationary, with opportunities for advancement, depending mainly on the good conduct and capacity of each individual, and it is intended to place competent men, who enlist with a view to promotion to the position of observer-sergeant, on duty where instruction can be obtained and opportunity for study afforded.

The Chief Signal-Officer, in his annual report for 1871 to the Secretary of War, recommended that a commission in the Army be given each year to the sergeant who shall in that year be reported as most distinguished for fidelity and ability, and in each of the years 1872 and 1873 an enlisted man of the signal-service was promoted to be a commissioned officer.

Married men and those under twenty-one or over forty years of age are not enlisted. The standard height is five feet four inches and upward.

2. Enlistments at this office are confined to candidates who have passed an examination prior to enlistment, before a board appointed by the Chief Signal-Officer, which meets at this office every Thursday at noon, and before which they must appear at their own expense. Testimonials as to good character and capacity, signed by persons known at this office, must be presented, together with an application in the handwriting of the candidate, (addressed to the Chief Signal-Officer of the Army,) stating his age, past and present avocation, and residence. The examination will be chiefly directed to accurate spelling, legible handwriting, proficiency in arithmetic, with special attention to decimal fractions, and the geography of the United States. After a favorable report from the above-mentioned board, and also a physical examination by the surgeon, the candidate will be enlisted, assigned to the signal-service, and unless detailed for some special duty connected with this office, will be ordered to Fort Whipple, Va., near this city, where the signal-service detachment and school of instruction is stationed, and will be placed at once under instruction to prepare for the duty of assistant to an observer on station; also performing the general duties of soldiers at hours when not required for instruction. When reported by the instructor as qualified, the enlisted man will, as the wants of the service require, be detailed on the above-mentioned duty of assistant. The length of time between being ordered under instruction and being detailed as assistant varies with the capacity and conduct of the individual, but has averaged about six weeks.

3. Men who do not present themselves at this office for the above-mentioned examination can apply in person to the officer in charge at Fort Whipple, Va., or to the observer-sergeants of the signal-service at the following points, viz: New York, Philadelphia, Baltimore, Cincinnati, Saint Louis, Boston, Buffalo, Chicago, Cleveland, Detroit, Indianapolis, and Louisville, which sergeants are ordered to present proper applicants to the recruiting officers of the United States Army in those cities. *No promise or statement different from this circular, made by any one, is authorized, or will be allowed to affect the terms of enlistment of any recruit.* Recruits enlisted at Fort Whipple, or at the above-mentioned cities, are placed on duty, in the first instance, at Fort Whipple, as private soldiers of the signal-service detachment for at least two months, after which they have the privilege, their conduct being good, to be examined, on their application, by the same board above alluded to, the examination being identical with that required of the civilian candidates prior to enlistment, and on passing that examination they are ordered under instruction under the same circumstances as above explained in paragraph 2. The distinction is, that being enlisted in the above cities before examination by the board, they are transported to Fort Whipple at the expense of the United States, also receiving rations *en route* or commutation therefor, instead of presenting themselves at this office at their own expense; and also that they take the risk, if they should fail to pass the required examination, of remaining on the usual duty of soldiers of the signal-service detachment,

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instead of being detailed as assistant to an observer, or on other duty requiring the amount of education exhibited by those passing the examination.

4. All soldiers of the signal-service, wherever enlisted, who have passed the above-described examination, and have been instructed and detailed on duty as assistant to an observer on station, or similar duty at this office, are required to perform such duties satisfactorily for six months before promotion from private to sergeant. As a rule, such men may, after the expiration of that time, be ordered to Fort Whipple as candidates for promotion, and after additional instruction, drill, and discipline in the duties of soldiers, are examined by a board of final examination, also appointed by the Chief Signal-Officer, and meeting at this office, but differing from the board of preliminary examination before mentioned, both in its members and the character of examination, the latter being exclusively on the course of study and practice in reference to the special duties of the service with which the candidate has had the opportunity to become familiar after his enlistment. They will also be examined by a board of officers, convened at Fort Whipple, as to their proficiency in the military duties of a sergeant. On passing these examinations the candidate will, as vacancies occur, be promoted to be sergeant, signal-service, United States Army.

5. The duties of an observer-sergeant on station, as also those of an assistant to an observer, will be chiefly those pertaining to the observation, record, and proper publication and report, at such times as may be required, of the state of the barometer, thermometer, hygrometer, rain-gauge, and other instruments, (instruction in the use of which will be given under the direction of this office,) and the report by telegraph or signal, at such times as indicated and to such places as may be designated by the Chief Signal-Officer, of the observations as made, or such other information as may be required—the telegraphic reports to be forwarded by the regular telegraphic operators, or in such manner as may be directed. The utmost precision will be required in observations and reports. The specification of these particular duties is not to exclude such others connected therewith as may be necessary.

The object of this plan is to insure the correctness and regularity of reports by having them made under military control. It being desired to make this body of men especially select, rigid examinations will be insisted upon.

All the duties will be performed strictly under the discipline of military law, all persons in the military service being subject to trial and punishment for improper conduct or neglect of duty under the Rules and Articles of War. The penalties for neglect of duty, bad conduct, &c., are dishonorable discharge, or such other punishment as a court-martial may direct, or as may be provided for by the customs of the service.

The United States is entitled to the whole time of the person enlisted; but the duties required on station are of such a nature that, with care and diligence, some time between the hours of reports, when no active duty is pressing, will generally be at the disposal of the observer, which may be devoted to reading or study. Most of those already enlisted have had such purposes in view. No employment of this nature can, however, be permitted to interfere, in any way, with that prompt and constant attention to duty which will be insisted upon.

6. The pay and allowances of both sergeant and private vary according to the character and place of the duties and the length of the service of each individual. The following table exhibits the average per month for five years, according to the present law:

Rank.	When at Fort Whipple, Va., or at a military post.	When on station.	When at this office.
Sergeants	$34 44	$77 25	$95 06
Privates	19 62	60 43	90 89

Of the above amounts $1 per month in the third year, $2 per month in the fourth year, and $3 per month in the fifth year are retained, and will not be paid until final discharge after faithful service. An allowance for clothing, averaging $5.59 per month for sergeants and $5.42 for privates, is also included in the above, which, if clothing is not drawn in kind, is also retained until discharge. When at Fort Whipple, both sergeants and privates receive quarters and rations, and at all places are, when ill, provided with medical attendance and medicines.

7. Applications being frequently made for enlistment in this service, conditioned upon the applicant being placed upon some specified duty or stationed at a particular place, it is to be clearly understood that no such qualification of the contract of enlistment will be allowed or considered, the wants of the service, which cannot be known in advance, regulating all details of duty.

By order of the Chief Signal-Officer of the Army.

GARRICK MALLERY,

Captain First Infantry, Bvt. Lt. Col., U. S. A., Acting Signal-Officer and Assistant.

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PAPER 7.

INSTRUCTIONS TO OBSERVER-SERGEANTS, SIGNAL SERVICE, U. S. A., ON DUTY AT STATIONS.

[General Orders No. 32.]

WAR DEPARTMENT, OFFICE OF THE CHIEF SIGNAL-OFFICER,
Washington, D. C., September 30, 1873.

1. Observer-sergeants, signal service United States Army, on duty at stations, will strictly comply with the following instructions, (in place of those heretofore issued to them from this office,) which will also be used as a text-book in all instruction given to enlisted men at Fort Whipple, Va., or on station.

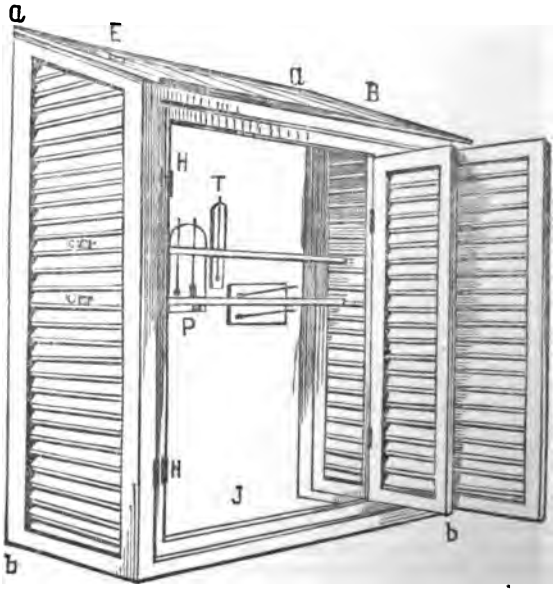
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By order of the Chief Signal-Officer of the Army.

GARRICK MALLERY,
Captain First Infantry, Bvt. Lt. Col., U. S. A., Acting Signal-Officer and Assistant.

INSTRUCTIONS.

1. Each observer, upon arriving at his station, will immediately proceed to secure a room suitable for office purposes and the storage of instruments and other United States property in his charge. This room must be in the immediate vicinity of the telegraph-office charged with the transmission and receipt of the weather reports, and should be in the upper story of a building and contain at least one window facing the north. In all cases he will endeavor to get permission to occupy the roof of this building for the necessary exposure of his instruments, and, at stations specially designated by the Chief Signal-Officer, for the erection of an instrument-room, in accordance with plans furnished by this office. A lease of this room for a period of one year, with the privilege of renewal on the part of this office, in accordance with the regular forms to be furnished the observer on application to the property and disbursing officer, will be made out and properly signed before any expense is incurred in fitting up the room or putting up instruments. When such permission cannot be obtained, or a suitable roof found, and at all stations not designated as above, an instrument-shelter will be constructed substantially as follows:



Select a window fronting the north; remove the lattice-blinds, if there be any, and along the exterior jambs of the window place perpendicularly two pieces of lattice-work, (a a,) projecting to a distance of from 20 to 24 inches from the panes. At half

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this distance, 10 or 12 inches from the panes, and at the height of the eye of the observer, when in the chamber, pass from one end of the shelter to the other two small wooden transverse bars, (c c,) each an inch broad, for the purpose of supporting the instruments. Upon the outer edge of the sides fasten, in the usual way, (b b,) the latticed blinds which were removed from the jambs, or two others provided for the purpose. These blinds will be hinged to the side-walls so as to be opened when necessary, and secured in the middle by an ordinary staple and hook. Ten inches outside of this frame-work an outer wall, also of lattice-work, will be placed with the front, opening in the center in the same manner as the inner wall. The whole must be covered with a small inclined roof of boards, (E B,) placed at least 15 or 20 inches above the instrument. The lower part, (J,) or the base, may remain open, unless the shelter is within 10 feet of the ground, in which case the bottom will be covered with slats 2 inches wide, placed 1 inch apart. The instrument shelter will be painted with white lead. The building selected should be detached from other buildings, and where this cannot be had, should be higher than those surrounding it. Too much attention cannot be given to the proper setting up of the instruments and their protection from local influences.

2. An observer, upon arriving at his station, will, as soon as practicable, put himself in communication with the board of trade, chamber of commerce, board of underwriters, and such other bodies as may desire to co-operate with this office in its efforts to make the service locally, as well as generally, useful. If meteorological committees have not been appointed by any or all of these bodies, their appointment should be urged as a matter of special importance, and the committees requested to place themselves in communication with the Chief Signal-Officer. He will also communicate with such colleges, scientific associations, and other institutions of learning as may be located at or near his station, and will explain to their officers and members the nature and object of his duties, and invite their co-operation. He must bear constantly in mind that it is expected he will use every effort in his power to render his office of the greatest public utility.

3. The office-furniture will be of the plainest kind, and consist only of such articles as are absolutely necessary for the proper transaction of business. The room, furniture, and instruments must be kept neat and clean at all times, and always prepared for *inspection*.

4. The regular reports from station ——— will commence with the morning report of ———, and from and after that date three observations will be made daily, and transmitted by telegraph, to ———, and four observations, at different hours, for transmission, weekly, to this office.

5. The observations for telegraphic transmission will be taken daily at —— a. m., —— p. m., and —— p. m., (local time,) and after the proper corrections are made, will be entered on Form 5, supplied by this office, and also in the daily record of observations and the record of bulletins, and a weekly record of them on Form 4 will be sent to this office. The instruments will be read in the following order:

1. Barometer.	2. Thermometer.	3. Hygrometer.
4. Anemometer.	5. Anemoscope.	6. Rain-gauge.

6. The readings of the different instruments must be entered as made in the original record of observations and *not* copied in from a slip of paper. Observers will habitually carry this book when making an observation, and enter the readings in *pencil*, as noted at the time. They will also use this book for making the proper corrections, as indicated by the marginal references. Pen and ink must *not* be used for entering any observation or correction. The mid-day observations will be entered on the spare pages of this book, using one column for each day properly dated and timed.

7. The reports will be handed by the observer in person to the operator charged with their transmission, in the order and at the times named below, viz: Report No. 1, at — a. m.; report No. 2, at — p. m.; report No. 3, at — p. m. The mid-day report, when sent by telegraph, will be filed as soon as practicable after the observation is made.

8. Observers must be at the telegraph-office, with the reports carefully and plainly written out in *duplicate*, ten minutes before the hours named above, in order that the operator may be notified in time to prepare for their transmission, and must obtain the signature of the operator to *both* copies *of each report*, with the exact time of receipt by him. They will also furnish the manager of the office with a plainly written or printed list of stations (with their proper telegraphic numbers) from which reports are to be received at, and also of those to be sent from, his office, with the names of the stations to which they are to be sent. If reports are to be transferred or selected for transfer at any station, the observer at that station must personally attend to such transfer or selection, unless prevented by sickness or other extraordinary cause. To provide against such an event, he must so arrange with the manager that the regular transmission of reports will not be interrupted by his absence.

9. The following is a list of stations, with their proper telegraphic numbers. Those

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to be received at station No. —— are underlined in red ink, and any failure to receive them must be promptly reported to this office, with a statement of the probable cause of failure.

Station.	No.	Station.	No.
Cape Roziere, Canada	1	Davenport, Iowa	51
Chatham, N. B	2	Leavenworth, Kans	52
Santiago de Cuba	3	Cairo, Ill	53
Kingston, Jamaica	4	Cape May, N. J	54
Father Point, Canada	5	Galveston, Tex	55
Sydney, C. B	6	Montreal, Canada	56
San Juan, Porto Rico	7	Quebec, Canada	57
Bridgetown, Barbadoes	8	Toronto, Canada	58
Basse Terre, Guadeloupe	9	Punta Rassa, Fla	59
Plaister Cove, N. S	10	Wood's Hole, Mass	60
Saint John's N. B	11	Vicksburg, Miss	61
Portland, Me	12	Memphis, Tenn	62
Boston, Mass	13	Nashville, Tenn	63
New London, Conn	14	Louisville, Ky	64
New York City, N. Y	15	Cincinnati, Ohio	65
Albany, N. Y	16	Saint Louis, Mo	66
Philadelphia, Pa	17	Omaha, Nebr	67
Baltimore, Md	18	Cheyenne, Wyo	68
Washington, D. C	19	Santa Fé, N. Mex	69
Wilmington, N. C	20	Corinne, Utah	70
Charleston, S. C	21	Fort Benton, Mont	71
Savannah, Ga	22	Shreveport, La	72
Augusta, Ga	23	Jacksonville, Fla	73
Lake City, Fla	24	Portland, Oreg	74
Key West, Fla	25	San Diego, Cal	75
Montgomery, Ala	26	Denver, Colo	76
Mobile, Ala	27	Virginia City, Mont	77
New Orleans, La	28	Port Stanley, Canada	78
San Francisco, Cal	29	Port Dover, Canada	79
Norfolk, Va	30	Kingston, Canada	80
Oswego, N. Y	31	Saugeen, Canada	81
Rochester, N. Y	32	Breckinridge, Minn	82
Buffalo, N. Y	33	Fort Sully, Dak	83
Cleveland, Ohio	34	Indianola, Tex	84
Toledo, Ohio	35	Alpena, Mich	85
Detroit, Mich	36	Pembina, Dak	86
Chicago, Ill	37	La Crosse, Wis	87
Milwaukee, Wis	38	Fort Garry, Manitoba	88
Saint Paul, Minn	39	Halifax, N. S	89
Du Luth, Minn	40	Lexington, Ky	90
Pittsburgh, Pa	41	Wytheville, Va	91
Knoxville, Tenn	42	Morgantown, W. Va	92
Indianapolis, Ind	43	Fort Gibson, Ind. T	93
Lynchburgh, Va	44	Eastport, Me	94
Burlington, Vt	45	Yankton, Dak	95
Mount Washington, N. H	46	New Haven, Conn	96
Keokuk, Iowa	47	Erie, Pa	97
Grand Haven, Mich	48	Dubuque, Iowa	98
Escanaba, Mich	49	Pike's Peak, Colo	99
Marquette, Mich	50	Havana, Cuba	100

10. At each station an observation of the barometer will be taken daily at 12 m., Washington mean time, and if a change equal to, or greater than, fifteen hundredths of an inch has taken place since the regular morning telegraphic observation, the fact will be reported immediately by telegraph to the Chief Signal-Officer, with the direction of wind and state of weather and the velocity of the wind in miles per hour; the whole being sent in the same order in which they are given here, and in the regular cipher words. A regular weekly report of these mid-day observations will be made out on Form 4 and mailed to the central office with the other reports on this form.

In these special reports the barometer will be corrected, in the usual manner, for temperature, elevation, and instrumental error.

11. In addition to the midday observation and those made for telegraphic transmission, three others will be taken daily—at 7 a. m., 2 p. m., and 9 p. m., (local time,) respectively. These will be recorded upon Form 4 in the same manner as the telegraphic observations, but on a separate sheet, and a copy of them will be forwarded weekly to the office of the Chief Signal-Officer.

12. After delivering his own reports to the operator, each observer or an assistant designated by the observer will remain in the telegraph-office until they are sent to their proper destination, and until the reports from other stations intended for use at his station are received, or until assured that their receipt has been prevented by some cause beyond the control of the operator. The reports for station No. —— should be received by —— a. m., —— p. m., and —— m., respectively; and when they are de-

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layed beyond these hours, the facts should in all cases be promptly reported to this office by mail, with a statement of the cause of delay when known.

13. To avoid useless delay in getting out the bulletins, observers should arrange, whenever practicable, to have the use of a desk or table in or near the operating-room of the telegraph-office, in order that the reports may be translated and written out properly as received. Where permission to occupy the room for this purpose is granted by the manager, a small table will be furnished by this office for the use of the observer, whenever necessary.

14. The telegraph-offices at which the reports are received will be kept constantly supplied by the observers with Form 2, and in all cases the receiving operator will be required to fill in this form with the name of station, *date*, and time that reports are received. Observers will in like manner fill up Form 5 before delivery.

15. ***Reports must be made on Sundays at the regular hours, and delivered punctually at the telegraph-office.***

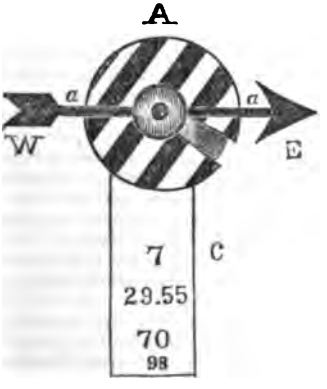
16. Immediately upon the receipt of the morning reports at any station the observer will translate them into ordinary language, and write them out clearly and plainly on the bulletin sheet, (Form 3,) filling in each column with the data named in its heading. The manifold issue of the bulletin will be used, and when completed, copies will be regularly posted in the rooms of the board of trade, chamber of commerce, and such other conspicuous places as may have been officially designated. Copies may also be furnished to private individuals when personal application is made for them at the observer's office, and their preparation does not interfere with the issue of those designed for public use, or with the ordinary and regular duties of the station. A copy will be furnished to each evening newspaper published at the station, and its regular publication secured, if possible. The local observations will invariably be entered in all bulletins, press-reports, and maps. At stations supplied with the manifold maps, their preparation follows the bulletins, and they will be printed as rapidly as practicable, and furnished to such parties as may be designated by this office, upon the recommendation of the observer in charge. The "War Department Weather Map" will then be changed in accordance with the following key and instructions:

The index consists of an arrow, disk, and card, which show the direction and velocity of the wind, state of the weather, height of the barometer, and height of the thermometer, and relative humidity at the place on which they are affixed. The index will be changed once daily, at 10 a. m., or as near that hour as is practicable. The arrow flies with the wind.

A red disk indicates clear weather.
A blue disk indicates sky covered with clouds.
A ¼-blue disk indicates sky one-fourth covered with clouds.
A ½-blue disk indicates sky one-half covered with clouds.
A ¾-blue disk indicates sky three-fourths covered with clouds.
A black disk indicates rain.
A white and black barred disk indicates snow.

A silicate tag projecting below the disk, and held in position by the same screw that fastens the arrow and disk, shows the velocity of the wind in miles per hour, the height of the barometer in inches and hundredths, and the height of the thermometer in degrees, Fahrenheit, and the percentage of humidity.

Example:



In using these tags a hole will be drilled through them near the upper end, by which they will be fastened to the screws. When the symbols are changed, these tags need

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not be removed, as the lead-pencil writing may be erased by means of a small piece of sponge slightly moistened, taking care that the face of the map is not soiled.

With proper care these tags will thus last for a number of months.

The barred-disk A indicates snow, and the position of the arrow *a a* that the wind is blowing from the west. The upper figure on the card, *c*, shows that the velocity with which the wind is blowing is seven miles per hour. The height of the barometer, shown by the middle figures, is twenty-nine inches and fifty-five hundredths, the height of the thermometer seventy degrees above zero, and the relative humidity, indicated by the lower figures, is 98 per cent. When the temperature is below zero the minus sign should always be prefixed.

To facilitate changing the disks they are cut so as to slip on and off without removing the clamp, as shown in the following figure:



A calm is indicated by the omission of the arrow.

17. The afternoon reports will be received and translated in the same manner as those received in the morning, and will be bulletined at such places as will insure the *greatest* publicity. At stations where the morning papers go to press too early for the publication of the midnight report, they will be furnished with the afternoon issue.

18. The night reports, after translation, will be carefully and promptly written out on Form 3 and furnished to such morning papers printed at the station as desire them for publication. Observers will endeavor to arrange with the publishers to have the reports taken from the observer's office, but where this arrangement cannot be effected, the observer, or his assistant, will deliver them in person at the different newspaper offices.

19. At stations where the publishers of newspapers desire to have the three full reports of the previous day, they will be supplied by the observers on the manifold form issued by this office for that purpose. In such cases, observers will write up the morning and afternoon reports during the day and evening, so that there will be no delay in getting out the full report at midnight. In filling out the heading of the daily bulletin, for publication, the time of the reports will be the exact local time of the place of publication, and will be so stated at all stations. In carrying out that part of their duty which relates to the publication and distribution of reports, observers will be required to act promptly and intelligently, as the usefulness of the reports depends wholly upon the speed and accuracy with which they are laid before the public.

20. In furnishing weather-reports and items for publication, observers must confine themselves strictly to the instructions issued from this office, and will not, *under any circumstances, publish, or cause to be published, forecasts or predictions of the weather.*

21. At each station a daily record will be kept of missing reports, showing the names and official numbers of the stations, with the cause of their non-receipt when known, and also such telegraphic errors as may come to the observer's knowledge. A copy of this record on Form 19 will be forwarded weekly to this office in the same package with the originals of Form 2.

22. A copy of the latest synopsis received by the observer or the Associated Press at stations where it is regularly received, will be posted with each copy of the bulletin that is publicly displayed. These copies will be made in manifold on Form 15 furnished by this office.

23. Observers will be held directly responsible for the correct publication of all weather-reports at their respective stations, and must take every precaution to guard against errors, especially in the newspaper copies, where they are most frequently found. The accuracy of the published reports must be verified by daily personal inspection, and when errors are found they should be traced to their proper sources and measures taken to prevent their repetition as far as in the power of the observer. The use of the regular official heading authorized by this office for all reports must be insisted upon, and care taken that correct time of issue is given to both the bulletin and synopsis.

24. When the wires of the telegraph company by which the reports are regularly transmitted are known to be down or obstructed in such a manner as to prevent their prompt transmission, they will be sent, until such obstruction is removed, over the wires of any other company possessing the necessary facilities, as provided for in special instructions from this office.

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25. In all reports and bulletins posted or furnished to the press for publication, due credit must be given to the telegraph company over whose wires they were received.

At all stations ordered to make river-reports, the depth of water above low-water mark will be observed at three o'clock (local time) each afternoon.

The sixth space in first line of Form 5 will be used for the depth in feet whenever the number exceeds eight, and the sixth space in second line for the odd inches.

Whenever the depth does not exceed 8 feet, the word "River" will be used to fill the space in the first line, and the whole depth given in the second line in inches.

In furnishing the reports to the press, and in filling up the bulletin, Form 3, the daily change will be given. This change will be obtained by taking the difference between the current report and that of the preceding day.

27. Whenever any sudden or unusual change occurs in the condition of the river between the regular hours of observation, a special series of observations will be made and the observed depth will be reported in the usual manner at the next succeeding telegraphic report, and these special reports will be continued tri-daily (one at each telegraphic report) until the river resumes its normal condition, when the morning and midnight specials will be discontinued.

28. In carrying out these instructions, observers will use the cipher-words in the column headed "Rise," when the river is rising at the date of report, and those in the column headed "Fall," when it is falling.

29. The observations for the morning and midnight special river-reports will be made within an hour of the time of report if practicable.

Observers must exercise great care in making and recording the river-reports, in order that they can be relied upon as accurate by interested parties.

30. The amount of rain-fall (or melted snow) will be measured and reported at each of the three telegraphic reports only.

INSTRUMENTS.

31. Each station will be supplied with the following instruments:

Two standard barometers, (Green's.)
Two standard thermometers, (Green's.)
One standard hygrometer, (Glaisher's model.)
One maximum thermometer.
One minimum thermometer.
One anemometer, (Robinson's,) with self-registering attachment.
One wind-vane.
One rain-gauge.
One clock.

Other instruments may be added from time to time as the necessity for their use becomes apparent.

BAROMETER.

32. The barometers will in all cases be carefully compared with the standard at this office before issue, and the amount of instrumental error will be sent with each when it leaves this office.

The two barometers furnished each station will be carefully compared by the observer in charge once a month, making a series of comparative readings of not less than twenty in number, which will be recorded in full in the daily journal as soon as made. In making out the monthly abstract of the journal these readings will be embodied in the instrumental report; they must not be corrected for elevation, but for temperature and instrumental error only.

No change of instrumental error will be made by any observer without direct authority from this office.

The barometer should be placed in a room of a temperature as uniform as possible, not heated, nor too much exposed to the sun. It should be suspended at the height of the eye, near a window, in such a manner as to be lighted perfectly without exposure either to the direct rays of the sun or to the currents of air which are always found at the window-casings and doors. To protect the instrument from external injuries, from dust, and from the direct radiation of warm bodies or the currents of air from the window, observers will fasten the wooden case in which it is carried firmly against the wall in a vertical position near the window, in such a manner that the cover will open in a direction parallel to the panes. An opening large enough to admit the tube of the barometer will be cut in the upper end of the box; and directly above this, at the distance of one inch, a strong hook will be driven into the wall. This hook should extend two or three inches beyond the box, and upon it the instrument will be suspended. When not in use the cover will be closed; but when an observation is to be taken it will be opened, and the instrument drawn out on the hook, clear of the box, and in

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the full light of the window. After the observation is made the barometer will be slipped back into the box.

33. All readings of the barometer taken for telegraphic transmission will be corrected by the observer making the observation, for instrumental error, for temperature, and for elevation, before they are sent from his station. In correcting for temperature, the reading of the attached thermometer will be used, while in correcting for elevation the temperature used will be that of the exposed or open-air thermometer.

In correcting for elevation, the height of the surface of the mercury in the cistern of the barometer above the ground must be added, in all cases, to the height of the station above sea-level, as in the following example, viz: Suppose height of station above sea-level to be 670 feet; height of mercury (surface) in cistern to be 17 feet above the ground; then the elevation to be corrected for would be 687 feet.

In correcting for temperature, Table XVII, pages 66 to 71, Paper C, of Guyot's tables, will be used; and for elevation, Table XIX, page 92, Paper D, of the same book, when special tables are not prepared under the direction of this office.

34. In transporting a barometer, even across a room, it should be screwed up and carried with its cistern uppermost. For traveling, it is provided with a wooden case. On steamboats or railroads, it should be hung up by a hook in the state-room or car, and the lower end firmly strapped to the side of the room or car to prevent jarring. In wheeled vehicles, it should be carried by hand, supported by a strap over the shoulder, or held upright between the legs; but it should not be allowed to rest on the floor of the carriage, for a sudden jolt might break the tube. If carried on horseback, it should be strapped over the shoulders of the rider, where it is not likely to be injured, unless the animal is subject to a sudden change of gait. When about to be used, it should be taken from its case, and, while screwed up, gently inverted and hung up, when it can be unscrewed. While it has its cistern uppermost, the tube is full—is one solid mass of metal and glass—and not easily injured, but when hung up a sudden jolt might send a bubble of air into the vacuum at the upper end of the tube, and the instrument would be useless until repaired. Observers must never *swing* the barometer or endeavor to force the mercury against the top of the tube without first screwing up the large adjusting screw at the base of the cistern.

If the cistern should become dirty, it can be cleaned with safety, and without changing, in the slightest degree, the zero of the instrument. Everything used in the operation must be clean and dry. Blowing upon any of the parts must be avoided, as the moisture from the breath is injurious.

The instrument being placed upright, the cistern uppermost, unscrew and take off the brass casing which incloses the wooden and leathern part of the cistern. This wooden part (which has the grain crosswise, and therefore is not air-tight) is made in two pieces, fastened together by four screws and four brass pieces, each in the form of a half of a circular ring. It will be necessary to take out two of these screws and loosen the other two, when the brass pieces can be taken off. The upper wooden piece, to which the bag is attached, can then be lifted off, and the mercury will be exposed. By then inclining the instrument a little, a portion of the mercury in the cistern may be poured out in a clean vessel at hand to receive it, when the end of the tube will be uncovered. This is to be closed by the *gloved hand*, when the instrument can be inverted, the cistern emptied, and the tube brought again to its upright position. Great care must be taken not to permit any mercury to pass out of the tube. The long screws which fasten the glass portion of the cistern to the other parts can then be taken off, the various parts wiped with a clean cloth or handkerchief, and restored to their former positions. The mercury which had been taken out of the cistern must now be cleaned, or it must be replaced by other that is clean and pure. If the old mercury is merely dusty, or dimmed by a film of oxide, the cleaning may be effected by straining it through chamois-leather, or through a funnel with a capillary hole at the end of a size to admit of the passage of but a small thread of the metal. Such a funnel is conveniently made of letter-paper. The dust will adhere to the skin or paper, and the filtered mercury will present a clean and bright appearance. At stations where muriatic acid can be procured, the mercury may be easily and quickly cleaned by mixing about two ounces of the acid with it in a small vessel or cup and then pouring into the vessel clear water until it overflows and carries off all the impurities. When sufficiently pure the water will be poured off and the mercury heated over a gas or lamp light until all remaining moisture is expelled. If chemically impure, it should be rejected, and fresh, clean mercury used. With such clean mercury the cistern should be filled as nearly full as possible, the wooden portions put together and securely fastened by the screws and clamps, the brass casing screwed on, and the screw at its end screwed up. The instrument can then be hung up and re-adjusted. The tube and its contents having been undisturbed, the instrument should read the same as before. If a little mercury has been lost during the operation, and there is none at hand to replace it, no serious harm has been done; but if much is lost, the open end of the tube may become exposed in inverting the instrument, in which case air may enter. To guard against this error, a little fresh mercury will be added.

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Station barometers will not be cleaned unless ordered by this office, or by an inspecting officer, or when such action appears to be absolutely necessary by the presence of air in the tube. In any case the fact will be promptly reported to this office, stating the number of the instrument so cleaned, with date, and result of the operation.

35. Each observer upon establishing a new station will, as soon as he is furnished with the correct elevation of his barometer above sea-level, prepare a table for reducing the barometrical observations to that level, in accordance with the following formula:

Formula.

(Guyot's tables, Paper D, page 88.)

$$c = \frac{f}{N} \times \frac{h'}{h}$$

c, is the correction required; f, the elevation of the station; N, the factor from the table on page 92; h', the reading of the barometer corrected for temperature; and h, the normal height of the barometer at sea-level, which may be assumed to be 30 inches for all stations.

For all observations *above* 30.20 and below 29.80 the full formula will be used; but between those numbers the first number only, $c = \frac{f}{N}$ need be used.

36. The following-named stations having been furnished with a constant correction, are excepted from the provisions of the foregoing paragraph:

Mount Washington, N. H.
Cheyenne, Wyoming Ter.
Denver, Colo.
Santa Fe, N. Mex.
Corinne, Utah.
Virginia City, Mont.
Fort Benton, Mont.
Pike's Peak, Colo.

37. This table will be made to cover the range of the barometer from 28.80 to 30.80, and will give a correction for every five-hundredths of an inch, and the full formula given in paragraph 1 will be used in its preparation. The table must be forwarded to this office for revision and approval before it is adopted by the observer.

THERMOMETER.

38. The thermometer should be hung in the instrument-shelter in such a manner that it will be always in the shade, and at least one foot from the wall of the building to which the shelter is attached, where the Smithsonian form of shelter is used. It must be protected against the light reflected from surrounding objects, and from rain, snow, and hail. The instrument must be placed exactly perpendicular, the middle of the scale being at the height of the eye in order to prevent error in reading. The readings should be made at all times, and especially in the winter, *through the panes*, without opening the window, when the shelter is built out from a window. When the shelter is built upon a roof, great care must be exercised in making the readings in order to prevent the instrument from being affected by the heat of the body or of the lantern at night. The observation must be made as rapidly as is consistent with accuracy.

HYGROMETER.

39. The hygrometer will be placed in the same shelter as the thermometer, and at a distance of one foot from it. The cistern will be kept supplied with pure water at all times when the temperature of the air is above the freezing point, and the cover of the wet bulb will be changed every month, and the bulb carefully cleaned. The cover may be washed as often as necessary, without removal, by means of a jet of clean water from a small syringe.

When the temperature of the air is below the freezing point the water will be emptied from the cistern, and in making an observation the wet bulb will be moistened with cold water, and the instant the mercury has reached its minimum its height will be noted. Alcohol must not be used.

The relative humidity of the air will be obtained from Table VII, page 46, of Guyot's Tables, when special tables are not furnished from this office.

Especial care must be taken to keep the tubes of the hygrometer clean, and the wet bulb properly moistened, and to make the observations and deductions accurately, as

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the humidity of the air forms an important element in all calculations of atmospheric changes.

Whenever the dry bulb of the hygrometer is observed to show a higher temperature than the exposed thermometer under similar exposure, the observer will cut a circular opening, about three inches in diameter, in the board to which the dry and wet bulbs are attached, and directly behind the bulbs.

MAXIMUM AND MINIMUM THERMOMETERS.

40. The board which accompanies these instruments will be securely fastened with screws, in a horizontal position, upon the side of the instrument-shelter, or observatory, near the hygrometer and exposed thermometer.

The brass support for the minimum will be screwed into the upper part of the board and the holes so arranged as to slightly incline the left end of the support.

The top of the thermometer will be fastened by the small brass screw upon the support, while the lower end will be dropped into the notch to the left.

For the support of the maximum thermometer the long brass pin with a nut will be screwed into the board, in the hole to the extreme right. The nut will be taken off and the pin slipped through the hole in the upper end of the instrument, which will be securely fastened by replacing the nut and securing it tightly. The plain brass pin is then inserted in the hole at the left of the board, and the thermometer placed upon it so as to incline slightly in that direction.

The end of the pin to which the maximum is attached must be occasionally oiled to prevent friction.

After unpacking the minimum it must be carefully compared with the exposed thermometer, and if an air-speck is found in the column the bulb will be immersed in warm water until all the air-bubbles disappear in the space at the top of the tube, *great care being taken not to break the bulb by heating it too suddenly.*

After fastening the top of the minimum upon the support, the lower end of the instrument will be raised until the top of the small index touches the top of the column of spirit.

The instrument is read by observing the number of degrees upon the scale where the top of the index rests. After taking a reading, the bulb or lower end of the thermometer, should be elevated until the index comes down to the temperature of the air, at the time of the observation, and the instrument will then be dropped into the notch at the left of the support, as before.

The maximum is read by observing the number of degrees upon the scale at the top of the column of mercury.

After taking a reading the observer will remove the pin to the left and then take hold of the thermometer, about three inches from the top, and spin it around several times, or until the top of the column is brought down to the temperature of the air at the time of observation. Care must be taken not to touch the bulb, and also that the nut is screwed up sufficiently tight to prevent the instrument from striking against the side of the board to which it is fastened. After adjustment, gradually raise the instrument to a horizontal position, and insert the pin as before.

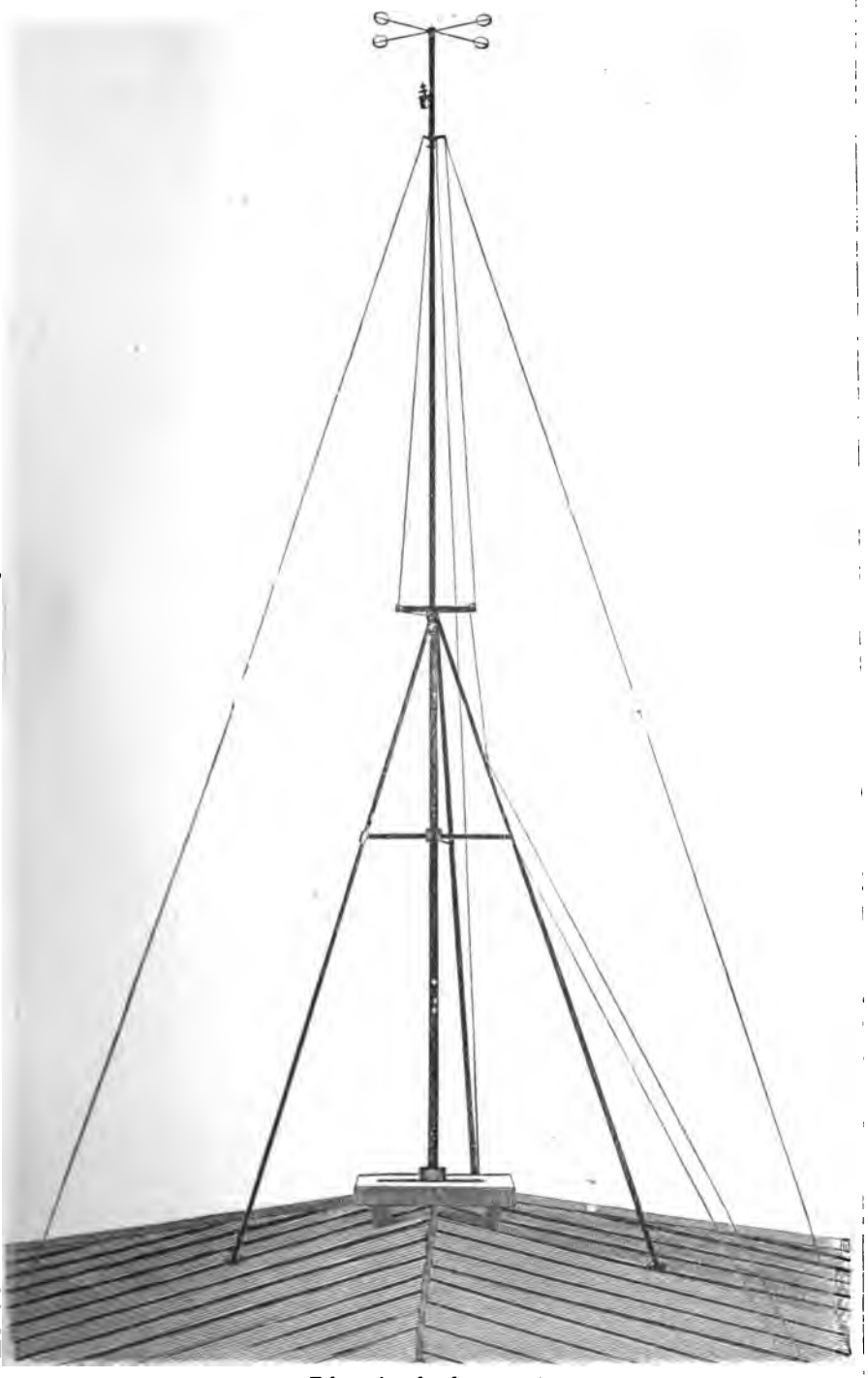
Care should be taken in elevating the thermometer not to raise the bulb too high, as the column of mercury would then run to the upper end of the tube.

The observations upon these instruments will be made at the 11.35 p. m. report, and recorded upon Form 4, in the proper column.

ANEMOMETER.

41. The anemometer will be fixed in a vertical position upon the telescopic rod, or, when this has not been furnished, a post of sufficient height to bring the dial on a level with the eye of the observer, and must be in an exposed situation, so as to receive the full force of the wind; when possible, this post should be framed into the roof, to steady it and prevent the instrument from vibrating; but when this cannot be done, it should be framed at the bottom into two pieces of scantling, not less than three feet in length, that cross each other at right angles, and which can be nailed fast to the roof or platform upon which the instrument is placed. Short braces can be added when necessary to insure steadiness. The outer dial of the instrument is graduated in miles and tenths of miles—the figures 1, 2, 3, &c., indicating miles, and the subdivisions tenths. One complete revolution of this dial is equivalent to ten miles of wind, and carries the inner dial forward one subdivision. This inner dial registers up to 990 miles, and will not be used in making the ordinary observations, but observers will assure themselves, by making a daily comparative reading, that the record of the dials and that of the cylinder read alike at the time of changing the record-sheets on the self-registering attachment at mid-day. When a discrepancy is found to exist between the two records, the anemometer will be carefully examined as to the condition of the

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Telescopic rod and anemometer.

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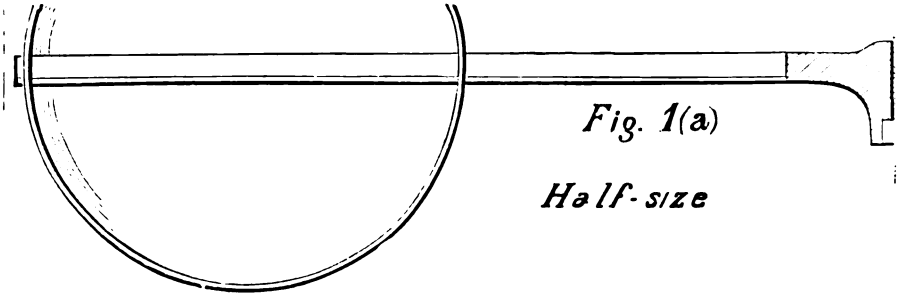


Fig. 1(a)

Half-size

Fig 1 half-size.

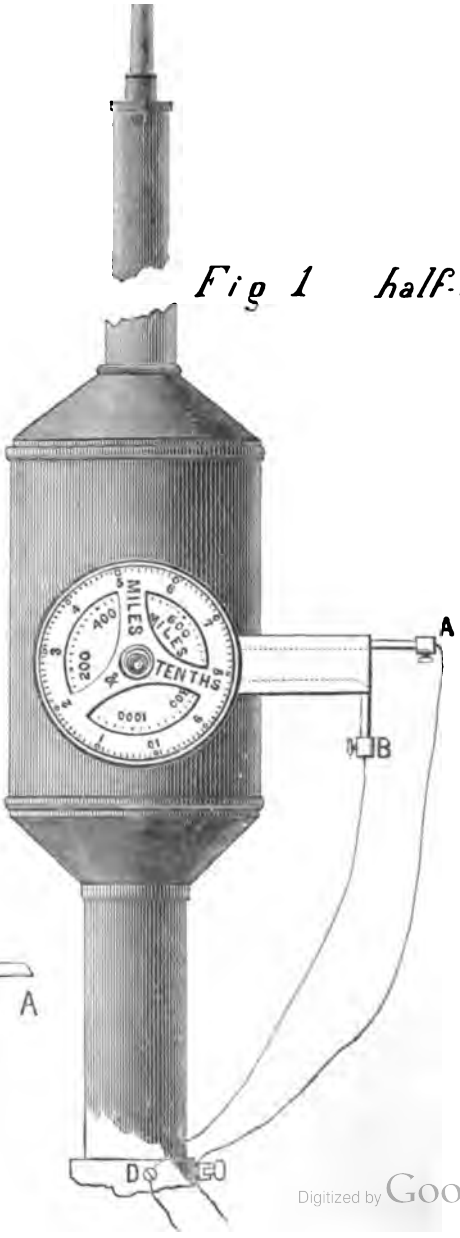
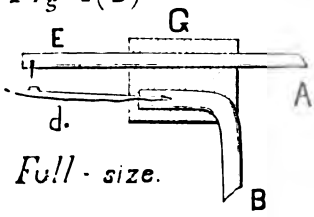


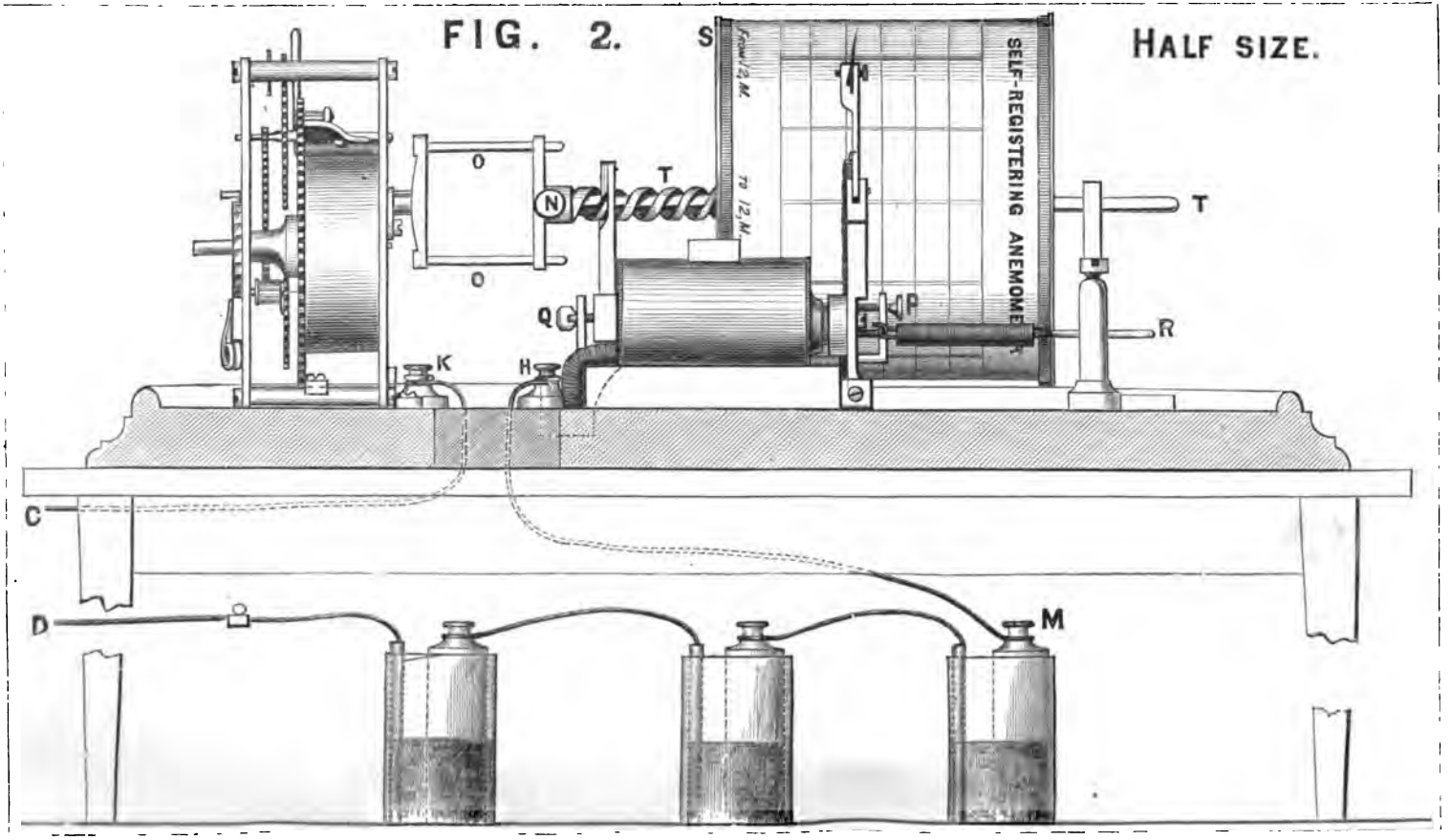
Fig 1(b)



Full-size.

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dial-pegs, or contact-pins, (which should always be perfectly straight,) and the contact-springs. The latter are liable to become corroded by the action of the electric spark or moisture, and must be kept clean.

42. To obtain the velocity of the wind for the regular observations when the self-registering attachment is out of order, two readings of the outer dial must be taken, with an interval of five minutes between them, and the *difference* between these readings will be the distance in tenths of miles traveled by the wind in that interval. This, multiplied by twelve and divided by ten, will give the proximate velocity in miles per hour. Example: suppose the index of the outer dial to be at 3 when the first reading is taken, and at 3.6 five minutes after, the difference, 6, is the distance traveled in that time; and this, multiplied by twelve and divided by ten, gives a velocity of seven and two-tenths miles per hour. Whole numbers only will be used in expressing the velocity. When the decimal is greater than five-tenths, the unit's figure will be increased by one; when five or less it will be thrown out. The whole distance traveled by the wind in any twenty-four hours, provided it does not exceed one thousand miles, may be obtained from the inner dial by a double observation, making the interval twenty-four hours instead of five minutes, and reading the result directly from the dial, without calculation as above described for observations from the outer dial, and will be entered on both copies of Form 4.

43. The following directions for setting up and the general management of the electric self-recording anemometer attachment adopted by this office will be observed at all stations supplied with the apparatus.

Near the top of the post on which the anemometer is fixed, place two screws, "c" and "d," (Fig. 1,) to each of these screws fasten the wires separately, (the insulated wire to one, and the naked wire to the other,) leaving just sufficient of the upper end of each wire to reach to the outside ends of the contact-bars "a" and "b," to which securely fasten with the binding screws, taking great care not to loosen the insulating attachment "g." Then pass the lower ends of the wire down the post, over the roof, and down the side of the house (securing so the wind will not sway them) to the top of the office-window, pass them in through two small holes (where the sash and shutters will not injure them) and down the inside. In crossing the roof it is well to fasten them between two wooden strips, one on top of the other. One wire should then go to the screw-cup "h" (Fig. II) and the other to one pole of the battery at "i," then from the other pole, "m," of the battery run a wire to the screw-cup "k," when the circuit is completed and the armature will be closed once for each mile the wind travels.

Particular care must be taken that all of the connections are tight.

For putting on the paper.—Place the cylinder "s" on a table in front, with the screw "r" to the left hand, place the paper on the cylinder with the top of it from the screw. Let the line marked 12 m. (noon) come on the line marked on the cylinder, and place a small rubber-band on each end. The lines on each end of the paper will then exactly coincide.

Place the cylinder "s" in its position, so that the end on which there is no screw "t" will be close up to the post on which it rests. Slide the small sliding bar "n" on the horizontal bars "o" "o," until it fits on the ends of the screw axle "r;" then revolve the cylinder until the pencil rests on the end of the upper line marked 12 m., and tighten the thumb-screw "n."

To regulate the length of the mark, first move the armature set-screw "p" until the point of the pencil rests on the upper line marked 12 m., then (after loosening the set-screw which holds down the coils) move the magnet by means of the set-screw "q" until the pencil-mark is a little less than one-eighth of an inch long. *The mark should never exceed one-eighth of an inch.*

Care must be taken in adjusting the armature spring, so that it will not be too strong for the magnet, and still strong enough to draw back the pencil in a straight line.

The pencils should be kept pointed enough to give a clear, distinct mark.

The clock should be wound every day when the record is changed.

The record should be changed daily at 12 o'clock, noon.

At stations furnished with this self-recording apparatus, the hourly velocity of the wind will be deduced from the record of the 15 minutes (multiplied by four) immediately preceding the time of observation.

The screw posts, or, in the old style of anemometer, the connecting-bars, must be kept bright where they form connection with the conducting wires, to prevent resistance to the passage of the current.

Especial attention will be given to the large dial-screw, and when found loosened it will at once be tightened, but care must be taken that it is not screwed up tight enough to interfere with the free motion of the dials.

The anemometer will be kept well oiled, so that there will be no friction and consequent wear of the wheel-works.

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The instrument must not be taken apart unnecessarily, and those having the new style of contacts will be manipulated with especial care.

Observers will familiarize themselves with the construction of the several parts of the anemometer, in order that they may be able to locate faults whenever the instrument is out of order.

BATTERY FOR ANEMOMETER.

44. The field-battery in use at the various stations of observation differs slightly from the ordinary form of Daniells' battery used on telegraph lines, in the manner of construction, the glass jar of the latter being dispensed with, and the negative (copper) element used as the containing vessel instead. The following directions for setting up and using this form of battery will be observed:

1. In putting the battery together for use, place the porous cup inside the copper vessel, and the star-shaped zinc element inside the porous cup.

2. Fill the copper vessel with a strong solution of sulphate of copper (preparing this liquid in another vessel by dissolving about half a pound of crystals of the sulphate in a quart of pure water) to within one inch of the top: *crystals of the sulphate must never be plunged in the copper vessel, neither must sulphuric acid be used to strengthen the battery*, as by so doing the copper vessel will be rapidly destroyed. The porous cup is also filled with pure water to within one inch of its top.

3. After all the cells are filled in this manner, connect the copper (positive) pole of one cup with the zinc (negative) pole of the next one by short pieces of insulated copper wire, using the copper clamps for attaching the ends of the wires to the zincs, and the fixed binding-screws for attaching them to the coppers. The main wires through which the circuit is formed will be attached to the copper and zinc elements of the outside or end cups, respectively.

4. A battery carefully put up in this manner should work with but slight diminution of force, for at least fourteen days, at the end of which time the porous cups will be taken out, emptied, washed thoroughly, and all pure copper on their outer sides removed, and will then be refilled with pure water. Care must be taken to avoid disturbing the paraffine at the bottom of the cups, as it is used there to prevent contact between the zinc and copper elements. The zincs will also be thoroughly cleaned by means of the battery-brush provided for that purpose. When properly cleaned they should present a comparatively bright surface.

5. The liquid in the copper vessels will not be changed as often as the water in the porous cups, but only when it loses its dark-blue color. It will be stirred daily, in order to keep it of equal strength above and below, as the sulphate held in solution has a tendency to settle to the bottom on account of its greater specific gravity, and thereby localizing its action.

6. The binding-screws and the ends of the small connecting wires must be kept scrupulously clean to insure good connections, and the copper vessels kept at least one inch apart to prevent contact. The cells should rest on a *painted* wooden base to insulate them from each other and from the earth, and care must be taken to prevent any escape of liquid from the several cells by which a connection might be formed between them.

7. Whenever practicable, observers will purchase their supply of sulphate of copper at the station where it is to be used; where this cannot be done, it will be furnished from this office.

8. The copper vessels will be kept properly painted on the outside.

45. DIRECTIONS FOR GIBBON'S ELECTRICAL RECORDING ANEMOMETER AND ANEMOSCOPE.

Setting up anemoscope.

1st. From the top of the large wind-vane remove the weather-cap, which is just above the friction-rollers.

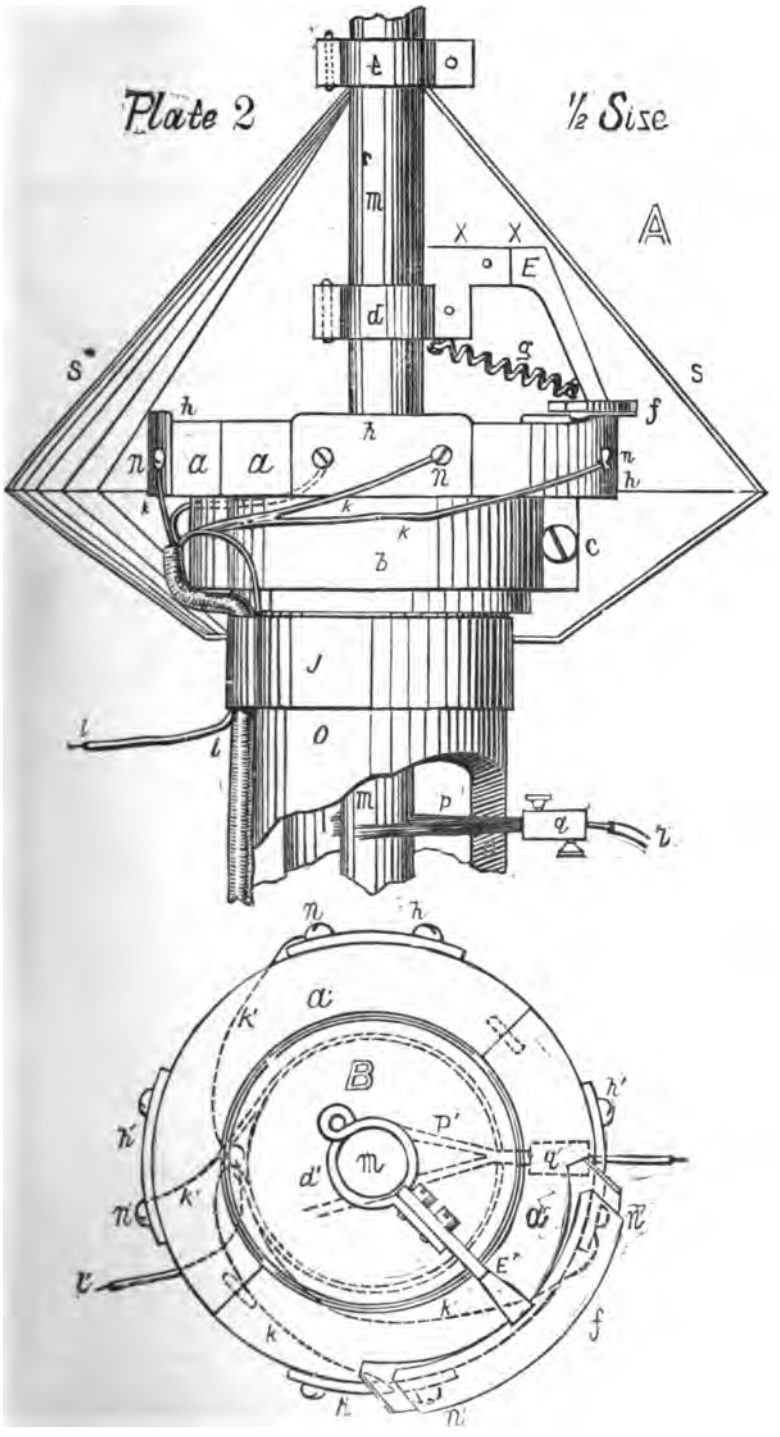
2d. Immediately beneath the friction-rollers, and close up under the circular plate upon which the rollers run, place the bisected wooden ring *a a*, Fig. A, and *a' a'*, Fig. —, on which are fastened four pieces of brass *h* and *h'*, each one-eighth of the circumference of the ring.

3d. Fasten this ring by means of the iron clamp *b* and screw *c*. If necessary a band of metal, leather, or rubber must be placed inside to make the clamp fit.

4th. This ring with one of the one-eighth brass sections *h* must be placed so that one of the sections must be directly opposite the north, and so the opposite halves of the ring exactly meet.

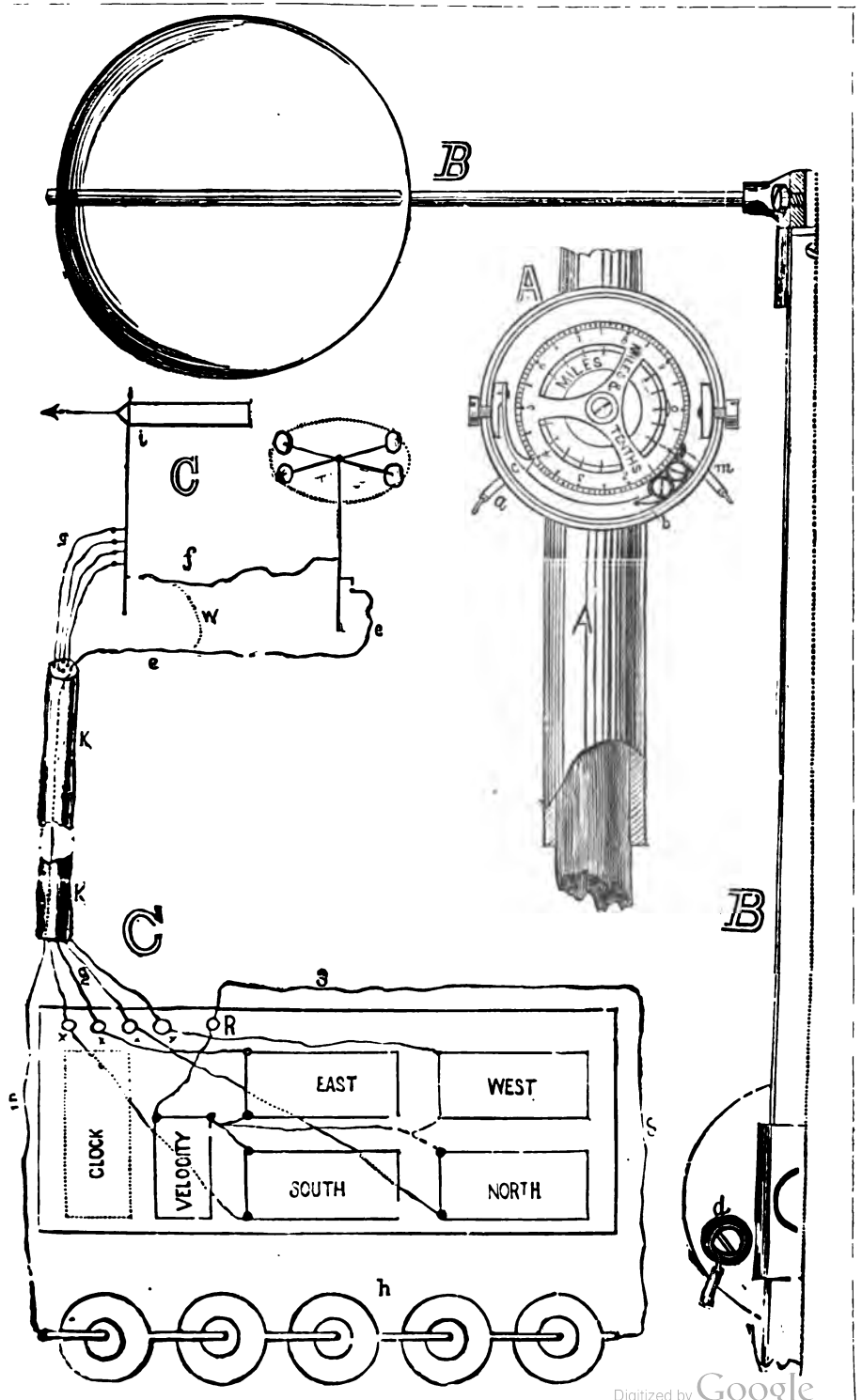
5th. At the point where the arm *d e*, which holds the friction contact *f*, is placed, file the upright shaft *m*, which holds the vane, until it is bright.

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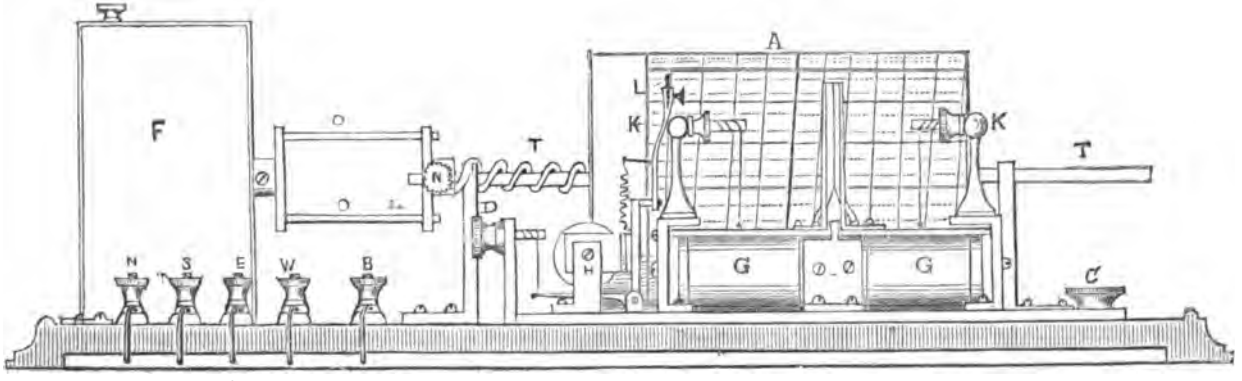
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Gibbon's electrical recording anemometer and anemoscope.

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6th. Fasten the friction contact *d*, *e*, *f*, to the shaft *m*, so that the parts *x x* will be level, and the friction surface *f* impinges fairly upon the brass pieces *h*, *h*, *h*, *h*.

7th. Take the five-wire cable *i*, and separate about a foot at one end. At the point of separation, wrap the outside covering with all the wires tightly together; clean well the ends of each wire; place the end of the cable where the outside covering is removed with the top one inch below the wooden ring *a a*, and tie it there temporarily.

8th. Carry one end of each of these wires *k*, *k*, *k*, *k* to their respective screws *n*, *n*, *n*, *n*, cut them off to the right length, and fasten them by the screws to the brass plates.

9th. The fifth wire is turned back down the cable, and the end left hanging loose, (to be afterward connected with the Robinson anemometer.)

10th. A piece of heavy tin or zinc *j* will be wrapped around the cable *i*, and 2-inch pipe *o* to prevent the cover *s* from rubbing or cutting the cable.

11th. Place the cover *s* over all the contact, and fasten with the clamp *t*.

12th. At some point "*o*" in the 2-inch tube *o*, (the support of the vane,) drill a hole about ¼ inch in diameter, into which drive a bunch of small wire "P," so that it will impinge upon the shaft *m* to make a good contact, and place a binding screw "*q*" upon it.

13th. From this binding screw, run a naked wire to the binding screw, which is not insulated, on the Robinson anemometer. (See "*o*," Plate 2.)

14th. Carry the cable from here to the electric recorder by the shortest or best route, taking particular care not to turn abrupt corners, and protecting the cable at such points by wrapping; pass it into the room through a hole, and not where it would be injured by the window.

15th. After getting into the room the wires should be tested for finding the proper points of the compass; to do this, (before putting the cable up,) it should be tested, and the wires numbered 1, 2, 3, 4, and 5 at both ends.

a. Attach the anemometer wire *e*, Fig. C, to one pole of the battery by splicing with another piece of wire.

b. Carry another wire to the binding post, R.

c. Attach a wire from *e* to *f*, shown by the dotted line in Plate I, Fig. C.

d. Have some person revolve the large vane, holding it long enough on each point of the compass to enable the person at the instrument to touch each wire to either binding post, and when the one through which the current flows is found, fasten it to its proper binding post. (The posts are marked N, S, E, W, and R, the latter going to the velocity magnet and to the battery.)

16th. Remove the wire *w* and make the connections with the Robinson anemometer by carrying the wire *l*, Plate 2, Fig. A, and "*e*," Plate I, Fig. C, to the insulated binding screw on the anemometer *d*, Plate I, Fig. B, and "*m*," Fig. A.

17th. Run a naked wire from the binding screw "*q*," Plate 2, Fig. A, to the remaining binding screw on the Robinson anemometer. This wire should be fastened to the posts of the vane and anemometer and not direct to the binding screws, as there would be danger of pulling them out.

DIRECTIONS FOR CARE OF INSTRUMENT-PLATE.

The velocity and direction are given simultaneously, the velocity once every mile, and the anemometer closing the circuit for the direction.

FOR PUTTING ON THE PAPER.

Place the cylinder on the table with the screw "*t*" to the left hand, place the paper on the cylinder with the top of it from the screw, let the line marked 12 m. (noon) come on the line marked on the cylinder and place a small rubber-band on each end. The lines on each end of the paper will then exactly coincide.

Place the cylinder A in its position so that the top end will be close up to the post on which it rests; slide the small sliding bar N on the horizontal bars *o o*, until it fits on the end of the cylinder axle I I; then revolve the cylinder until the pencil which marks the direction rests upon the end of the line marked 12 m. on the lower half of the blank form, then tighten the thumb-screw N.

The length of the mark for velocity is adjusted before being issued. To adjust the pencil to the lines, turn the eccentric screw *c* until the velocity pencil I is in proper position, which will leave the direction-markers properly adjusted.

The pencils should be kept nicely pointed. The clock should be wound and the record changed every day at noon.

WIND-VANE.

46. Two wind-vanes will be furnished at each station; one small one to be sent with the observer for immediate use upon his arrival, and one large one to be sent as soon

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after the station is opened as practicable. When the latter is received the small one will be removed and carefully stored by the observer for use in cases of emergency.

47. The vane used for getting the direction of the wind must be set in a place as free and open as possible, in order that the wind may act freely upon it, and must never be sheltered by surrounding buildings or other objects. When the small one is used, observers will mark, with the aid of a compass, upon a wooden dial, at the base of the upright which supports the vane, the true meridian of their respective stations. The magnetic variation at the stations now occupied is shown in the following table:

Station.	Variation east.	Station.	Variation west.
	° ′		° ′
Alpena, Mich	0 00	Baltimore, Md	4 00
Augusta, Ga	3 00	Boston, Mass	11 00
Breckenridge, Minn	14 00	Buffalo, N. Y	4 00
Cairo, Ill	7 00	Burlington, Vt	11 00
Charleston, S. C	2 00	Cape May, N. J	4 30
Cheyenne, Wash	15 00	Cleveland, Ohio	0 00
Chicago, Ill	5 30	Eastport, Me	18 00
Cincinnati, Ohio	3 30	Lynchburgh, Va	1 00
Corinne, Utah	17 00	Mount Washington, N. H	13 00
Davenport, Iowa	2 00	Morgantown, W. Va	1 00
Denver, Colo	14 00	New Haven, Conn	2 00
Detroit, Mich	1 00	Norfolk, Va	2 00
Du Luth, Minn	9 00	New London, Conn	9 00
Escanaba, Mich	4 00	New York City, N. Y	7 00
Fort Benton, Mont	21 00	Oswego, N. Y	7 00
Fort Gibson, I. T	10 00	Philadelphia, Pa	5 00
Fort Sully, Dak	14 00	Pittsburgh, Pa	1 00
Galveston, Tex	9 00	Portland, Me	13 00
Grand Haven, Mich	4 00	Rochester, N. Y	5 00
Indianapolis, Ind	4 30	Washington, D. C	2 30
Indianola, Tex	9 00	Wilmington, N. C	0 00
Jacksonville, Fla	3 30	Wood's Hole, Mass	10 00
Keokuk, Iowa	2 00		
Key West, Fla	4 30		
Knoxville, Tenn	3 30		
La Crosse, Wis	2 00		
Lake City, Fla	3 30		
Leavenworth, Kans	11 00		
Lexington, Ky	3 30		
Louisville, Ky	4 30		
Marquette, Mich	4 00		
Memphis, Tenn	8 00		
Milwaukee, Wis	5 30		
Mobile, Ala	6 30		
Montgomery, Ala	5 30		
Nashville, Tenn	5 30		
New Orleans, La	7 30		
Omaha, Nebr	12 00		
Pembina, Dak	17 00		
Portland, Oreg	21 00		
Punta Rassa, Fla	4 30		
San Diego, Cal	13 30		
San Francisco, Cal	16 30		
Santa Fé, N. Mex	13 00		
Savannah, Ga	3 00		
Shreveport, La	2 00		
Saint Louis, Mo	8 00		
Saint Paul, Minn	10 00		
Toledo, Ohio	2 00		
Vicksburgh, Miss	8 00		
Virginia City, Mont	19 00		
Wytheville, Va	1 00		
Yankton, Dak	12 00		

49. When the large vane is received at any station it will be immediately erected upon the building in which the observer's office is located, provided the consent of the owner of the building can be obtained, and the roof is strong enough to support its weight.

The general appearance of the vane, and the location of the several parts, are shown in the illustration herewith. The iron straps which unite the two parts of the foot-block will be taken off and the block separated before raising the vane, in order to put the iron socket holding it in proper position. After the vane is up the pieces will be fastened firmly together again by these straps. The central rod can be lengthened whenever necessary by adding a piece of the same diameter and cutting a screw-thread on both ends.

Where the office is not on the upper floor so that the rod can be brought into the

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room through the roof, the lower half of the rod will not be attached, but must be stored away for future use. When the office is on the upper floor the central rod will be brought into the room and allowed to project about two inches through the ceiling. The gilded arrow will then be screwed on and a circle drawn around it on the ceiling a little greater in diameter than the arrow. This circle will be divided into the eight points of compass used in the weather-reports, care being taken to get the true meridian as a starting-point.

50. All stations supplied with the standard wind-vane, with the indicator extending through the roof to the office-ceiling, the words "Adjusted to the true meridian" will be printed inside the vane-circle upon the ceiling.

51. When permission cannot be obtained to put up the vane the fact will be reported at once to this office.

The services of a skilled mechanic may be employed, whenever necessary, in erecting this vane.

The packing-box in which the vane is received will be preserved for use in the event of its removal at any future time.

52. The observation of the vane requires more care than is usually given. In winds of considerable strength the vane is never at rest, or fixed in the same direction; it oscillates incessantly, and its oscillations increase in extent with certain winds and with the violence of the wind. In such cases observers must *note the mean* direction between the extremes. When the wind is too light to move the vane, and when it is calm, no direction will be given in the report, but the space will be filled with the proper cipher-word for "Calm." The attention of observers is called to this matter in order to prevent them from recording the direction of the wind when it is calm. The direction of the wind will be designated by the eight principal points of the compass, beginning with the north and moving around by the eastward, and numbered from one to eight respectively. In reporting changes in the *direction* of the wind, the terms *veering* and *backing* will be used. The term *veering* indicates the changing of the wind from N. to E. to S. and so on, while *backing* being the reverse term, indicates that it changes from N. to W. to S. and so on.

The bearings of both vane and anemometer must be kept well and carefully oiled to prevent friction.

RAIN-GAUGE.

53. The rain-gauge will be placed, whenever practicable, with the top of the funnel-shaped collector 12 inches above the surface of the ground, firmly fixed in a vertical position, and protected from the interference of unauthorized persons. It will be examined at the time of making each of the three telegraphic observations, the amount of water it contains carefully measured by means of the graduated rod sent with each gauge, and then emptied and returned to its proper position. When a position at the level of the ground cannot be found with a sufficiently clear exposure, the gauge will be placed on the top of the instrument-room, or roof of the building occupied by the observer, who will measure the height above the ground and report it to this office. The measuring-rod is graduated in inches and tenths of inches, and the proportion between the cylinder and funnel is as ten to one, so that ten inches upon the rod correspond with one inch of actual rain-fall, one inch on the rod to one-tenth of rain, and one-tenth on the rod to one-hundredth of rain. Snow will be melted and then measured and reported in the same manner as rain, but the fact of its being melted snow must be noted under the head of remarks, in the weekly reports, on Form 4.

CLOCK.

54. The clock will be hung upon the interior wall of the room occupied as an office, and at each station will be carefully adjusted to the standard local time.

As it frequently happens that the telegraph time differs slightly from the standard local time, each observer will be careful to note the amount of this difference, in order to avoid confusion in filing his reports. As the time by which the observations are governed must be as nearly accurate as practicable, the observer will endeavor to arrange with the manager of the telegraph to have both clocks run together as a sure means of preventing errors.

55. Immediately after placing his instruments in position, each observer will make out and forward to the Chief Signal-Officer at Washington a full report in writing, stating the kind, size, and position of room selected; the street and number of the building in which the room is situated; the position of each instrument, and height of each above the ground, and also above the bench-mark furnished by this office. In giving the height of the barometer the measurement will be made from the surface of the mercury in the cistern. Whenever the position of any instrument is changed a record will be made of such change, with date and amount of difference in elevation, and the facts reported at once to this office.

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In addition to this information, such other facts will be stated as will enable the Chief Signal-Officer to judge of the manner in which this part of the observer's duty has been performed.

56. Observers are cautioned against changing the position of any instrument without good and sufficient cause, and must report every change in elevation of six or more inches.

TOOL-BOX.

57. The following implements for cleaning and repairing instruments will be supplied, neatly packed in a small box, to each station:

Two screw-drivers, one fitting the screws about the cistern, the other those about the scale of the barometer; a small glass funnel; two porcelain cups, from two to four inches in diameter; kid-skin, shoemaker's thread, white wax, chamois-leather, a pair of small forceps, a small three-cornered file, and a blow-pipe.

MISCELLANEOUS APPARATUS.

58. *Printing-press for weather-map.*—At stations supplied with a press for printing maps, the following articles, not sent with the press, will be found necessary: A set of type-springs (one for each reporting station) for the rapid justification of the figures; one stick, one galley, sponge, brush, lye, sperm-oil, and benzine. All these articles will be purchased by the observer, except the type-springs, which will be furnished from this office.

When the Synopsis and Probabilities are printed, (and this should be done wherever there is a press,) a twenty-five-pound font of pica type will be necessary, in addition to the symbols and figures furnished with the press. The Synopsis should be set in a measure of twenty-eight ems wide. At stations supplied with the type-springs the figures will not be removed from the plate after each issue, as the work can be done much more rapidly and easily by simply taking out the springs and changing only such figures as are necessary.

The figures and symbols should, however, be completely removed twice each month, and, with the plate, thoroughly cleaned. The figures can be cleaned daily in the plate by using a sponge moistened with benzine. The type used for the Synopsis should be washed with lye. The ink-roller should be cleaned weekly, or oftener if necessary, and everything pertaining to the press must be kept well cleaned to prevent difficulty.

If stations are added for which the bed-plate has not been pierced, observers will have the necessary work done, being careful to get the new stations in their proper geographical position.

One copy of the map will be kept on file in the observer's office for reference, and on Saturday of each week a copy of the current issue will be mailed to this office.

59.—INSTRUCTIONS FOR PRINTING AND DISTRIBUTING THE DAILY SYNOPSES AND PROBABILITIES OF THE SIGNAL-SERVICE, UNITED STATES ARMY, ISSUED BY CO-OPERATION OF THE WAR AND POST-OFFICE DEPARTMENTS.

1. The press used is the Liberty No. 3, and will be supplied to each distributing station from the central office in Washington.

2. The following articles, required for working the press, when not sent with it, will be purchased by the observer in charge at the nearest reliable type-foundery, and a bill for the same forwarded to this office for settlement:

1. Composition roller.
2. One oil-can.
3. One mallet.
4. One shooting-stick.
5. One planer.
6. Fifty quoins.
7. Six pieces furniture.
8. One composing-stick.
9. One rule.
10. Ten pounds leads.
11. One lye-brush.
12. One saw.
13. One saw-block.
14. One pound Johnson's ink.

3. The standard kind of type used will be pica condensed, of which one 30-pound font will be purchased by the observer at the nearest type-foundery. The following electrotypes for use in printing the Synopses and Probabilities will be furnished by the central office:

1. Two official heads.
2. Two official autographs of Chief Signal-Officer.
3. Two "Synopses."
4. Two "Probabilities."

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With proper care the type should last two years and the electrotypes one year.

The Synopses and Probabilities will be printed on flat letter-paper furnished from the central office, and timely requisitions will be made for it. Observers will also see that at least one month's supply is kept constantly on hand.

5. The copies printed at all stations will be similar in form, size, and appearance to those printed at the central office, and bear the same time and date.

6. The Synopses and Probabilities will be issued every morning, except on Sundays, and two copies of every issue will be mailed in one wrapper to each post-office on the list furnished the observer from the central office; also two copies to this office regularly each day. They will be delivered at the post-office of the station where printed in time to be sent off with the earliest morning mail leaving the station. The observer-in-charge will ascertain from the postmaster of such office the precise hour at which they must be delivered for this purpose, and will instruct his assistants accordingly by posting up in his own office an order setting forth the time of delivery and name of assistant charged with this duty.

7. One assistant at each station will be charged with the duty of printing the Synopses and Probabilities alone. He will report for duty one hour before the usual time of receiving the Synopses from the telegraph-office, for the purpose of clearing up and distributing the type, cleaning press, and cutting the paper. The average time required for composition will be one hour; and when the form is on the press the sheets must be worked off in time for the mail, the number varying from 500 to 800 per hour.

8. An assistant will be at the telegraph-office at least ten minutes before the usual time of receiving the Synopses from Washington, and will carry it without delay, when received, to the printer. This assistant will remain at the office to fold and mail the Synopses, and will perform his duty promptly and with regularity.

9. The envelopes or wrappers will be addressed by an assistant selected for the legibility and rapidity of his writing. Especial attention must be paid to legibility by the observers to prevent errors and delays in transmitting these reports through the post-office. Whenever practicable, this duty will be performed by the assistant referred to in paragraph 8, and at least one full day's supply will be kept constantly on hand properly addressed.

10. Proper arrangements will be made by the observer in charge to supply promptly the place of any one or more of the assistants who may be absent through sickness or other causes, and to accomplish this he will instruct his other assistants in the various duties provided for in these instructions.

STAMPING MAPS.

60. *Instructions for stamping manifold weather-maps.*—1. Count off from ten to fifteen maps from the top of the book.

2. Place the iron plate under the number counted out, and turn a map down upon it.

3. Place a sheet of carbon-paper smoothly upon this map, and then turn down the next map, on which put another sheet of carbon, and so on alternating carbon and maps until the number to be issued is complete, leaving the last map without carbon upon it, taking care to smooth all when down.

In making three or four maps only a sheet of blotting-paper should be placed next to the iron plate and beneath the lower map.

4. Place the box of stamps at the top of the map, with each die in its proper place, and taking especial care not to allow the hands or mallet to rest on the paper, and thus mark and deface the lower maps.

5. First stamp with the symbol-dies the direction of the wind and state of weather, as indicated by the legend on the maps. Hold the die perpendicular to the map and strike it hard enough to make the impression go through all the maps without cutting the upper one. The actual amount of force required can only be learned by practice.

6. After the weather use the figure dies, taking care that the figures for one station do not interfere with those of any other. Stamp the first two figures (thermometer) close together, the next two (barometer, 29 or 30) one-eighth of an inch from the first pair, the last two of the barometer following closely. The last of the figures (velocity of the wind) are to be separated one-eighth of an inch from those for the barometer. Great care must be taken to make the figures neat and regular in appearance, and to stamp them so they can be read without difficulty.

7. After the maps are properly stamped write with the stylus in head-line the name of station, day of week, date, and time of report, thus: "Washington, D. C., Saturday, April 20, 1872, 7.35 a. m."

WATER-GAUGE.

61. No definite form of water-gauge has been adopted, owing to the difficulty of getting one at a reasonable cost that would be adapted to the essentially different circumstances under which it must be used at the several river-stations. The following

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description of a simple form of gauge may be useful in localities where it is difficult to get one of more scientific construction, or to be used as a temporary substitute for the latter in cases of emergency:

Take a piece of pine scantling, from 1¼ to 1½ inches in thickness, and from 5 to 6 inches in breadth; the length varying according to the depth of the water where it is to be used.

Having planed the scantling smooth, give it a heavy coat of white zinc paint, and after the paint is dry divide the scantling into feet and tenths of feet with a rule and lead-pencil.

With a small brush paint the tenths of feet black, except the center and initial ones of each foot, which will be painted red and in heavier lines than the intermediate ones, thus:



Indicate each foot, with its proper number, in plain figures marked on the white surface just above the triangle.

Having thus marked the staff up to a sufficient height to insure getting the maximum high water, select a pile, or other stationary object, in some portion of the levee or wharf where the staff will be secure from being damaged or defaced by coming into contact with vessels, and where it will not be left dry by the tide. Lower the staff into the water, taking care to keep it in a vertical position until it touches the bed of the river, and then secure it to the pile by spikes.

It would be well, in selecting a place for fixing the staff, to take the angle of a pier, and having fastened a smooth piece of scantling, about the size of the staff, on the side of the pile, secure the staff to this.

When the gauge is in an exposed place, liable to be washed by the waves, advantage should be taken of the first low water to secure it from being displaced, by driving in additional spikes, or lashing it with strong cords to the pile.

Care must be taken in reading the staff when the water is rough to get the mean of the rise and fall of the waves. It would be well, after securing the staff, to determine some point of reference, so that in case it should be destroyed another one could be put up at the same height. This may be done by taking and marking some given point in the vicinity, a pile or a rock, at any given height of the water. Thus, by driving a spike or drilling a hole, and recording the height of the water, as read from the staff at the time, you have a "bench-mark," or point of reference, by which to set up another staff. It would be necessary in doing this to make a sketch of the place, giving the location of the staff and the point of reference; noting the local names of the surrounding points so that any other person could find the place from the description.

62. Observers, in publishing their local river-reports, will give, in addition to the changes in past twenty-four hours, the height of water above or below some fixed point known and used by steamboat-men and other interested parties.

63. The river observations must be made and reported with as much care, regularity, and accuracy as those of the barometer, and where the observer is compelled by pressure of other duties to intrust this part of his work to an assistant, he must assure himself by frequent personal inspection that it is faithfully and honestly done.

SIGNAL APPARATUS.

64. Stations ordered to display cautionary signals will be supplied with two (or more) red flags, one 6 feet and the other 8 feet square, having square *black* centers one-third the size of the flag; one red signal-lantern; one large flag-staff, and two sets of small staffs for use in cases of emergency. The large flag-staff must be from 25 to 30 feet in height, and so situated as to be clearly visible from as large a part as possible of the harbor and shipping it is designed to warn of approaching danger. The staff will be provided with halyards for raising and lowering the flags and lantern, and will be erected on the roof of some building, preferably on the one in which the office is located, unless a more desirable position is found near the office.

Everything connected with the signal apparatus must be kept in perfect order; flags mended when torn, ties sewed on, halyards renewed, lanterns constantly filled and trimmed, and the approaches to the staff convenient so that there may be no delay in obeying all orders to hoist or lower signals.

65. Timely requisition must be made upon this office for new articles of equipment when those in use are likely to become unserviceable.

SIGNAL-ORDERS.

66. Signals will be ordered up by telegraph from this office in the words "Up signals," and will be ordered down in the words "Signals down." Signals will remain displayed until the order to lower them is received from this office, unless telegraphic communica-

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tion with the office is interrupted and continues so for some hours after the storm has passed, in which case the signal will be lowered when the danger is over. Extreme caution must be exercised in this respect, in order not to mistake the customary lull in the center of a storm for an indication that it has passed over.

Observers must not, under any circumstances, hoist or display cautionary signals without authority from this office.

67. Observers must immediately acknowledge by telegraph the receipt of all signal-orders, giving name of station, nature of order, and time of receipt. These acknowledgments will be addressed to the Chief Signal-Officer, and signed by the observer or assistant receiving the order. The following examples will illustrate the form of message to be used:

(1.)

CHIEF SIGNAL-OFFICER, *Washington:*

Chicago—Up Signals received ten-forty a. m.

KAUFMAN,
Observer.

(2.)

CHIEF SIGNAL-OFFICER, *Washington:*

Detroit—Signals Down received six-fifty p. m.

FINN,
Observer.

68. At the end of each week a report, made out on Form 23, will be forwarded in the same envelope with the other weekly reports. This report will be forwarded regularly, whether orders have been received or not during the week.

The hours of duty will be so arranged at cautionary stations that one man will be in the office constantly, in readiness to obey signal-orders.

RECRUITING FLAG.

69. Each station will be furnished with one United States recruiting flag, for display on special occasions as ordered from this office. At cautionary stations it will be displayed on the signal flag-staff, and at other stations a cheap staff, 12 or 15 feet in length, will be procured for this purpose, and so arranged that it can be put up and taken down at pleasure.

MAP AND BULLETIN FRAMES.

70. Frames for the proper display of maps and bulletins will be furnished by this office, and will not be purchased by the observers without special authority.

FORMS.

71. The following-named forms will be furnished by this office for station use:

Form 1.—Telegraphic river-report.
Form 2.—Receiving-sheet.
Form 3.—Daily bulletin.
Form 4.—Weekly report.
Form 5.—Telegraphic report.
Form 6.—Receipt for property.
Form 8.—Weather-map.
Form 15.—Synopsis.
Form 16.—Monthly chart.
Form 19.—Error-sheet.
Form 22.—Monthly mean.
Form 23.—Cautionary-signal blank.
Form 24.—Record of bulletins.
Form 25.—Telegraphic form.
Form 26.—River-bulletin.
Form 27.—Special river-report.
Form 28.—Regular weekly river-report.
Form 30.—Weekly instruction-report.
Form 31.—Weekly report, temperature of water.

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Form A.—Record of telegrams refused by telegraph companies.

Form B.—Record of telegrams sent and received.

72. Form 1 is used by the special river-observers for their reports, which should be made in duplicate; one copy for file in the telegraph-office at the schedule times and the other to be forwarded to this office at the end of each week.

73. Form 2 is for the use of the telegraph-operators in receiving the reports from other stations, and will be furnished by the observers in such quantities as may be required, care being taken to guard against wasteful and unnecessary use. The spaces will be filled up in regular order, commencing at the upper left-hand space and filling each space to the right in succession on the first line, and then commencing at the left-hand space of the second line, and so on until each space is filled. Observers will require the receiving operators to sign and date each sheet, and also to note the time the reports upon it were received, before taking it from the telegraph-office. When the reports are received in duplicate by the operator, observers will retain the original sheets furnished them by this office.

After the reports are transferred to the bulletin the receiving sheets for each full report will be placed together and folded neatly in three folds parallel with the writing.

Each morning the three reports of the preceding day will be secured together so as to form a single package. At the end of each week the seven daily packages of the week will be put up in a neat package and forwarded by mail to this office, accompanied by the error-sheet.

74. Form 3 is the Daily Bulletin, issued for public information. The several columns will be filled up from the receiving sheet, the words and figures being written plainly and distinctly.

Before making any entries upon the manifold form, the sheets will be carefully smoothed down so that the registered lines of the several stations will fall directly over each other. If more than fifteen bulletins are to be written it is better to make out the number in two equal parts than to try and write them all at once, in order that the copies may all be legible.

One copy of the morning issue of the Saturday Bulletin will be mailed to this office from each station.

The headings of the different columns indicate with sufficient clearness the matter to be filled in.

When any part of a report is not received, or, if received, is evidently incorrect, the word "blank" will be written in the spaces to be filled by such part.

Absence of wind, pressure of wind, clouds, rain-fall, or change in barometer, thermometer, and river, will be indicated by the figure zero.

New stations, whose names are not in the printed list, will be written in the blank lines at bottom of the form.

The following data will be given on all Forms 3 posted:

"Posted in.....

at..... M .....

(Signed).....

Observer."

In the first blank space will be written the name of the locality where posted; in the second space, the *time;* and in the third space, the *date* of posting.

Each bulletin will be signed with the full name of the observer.

75. Form 4 is the weekly report, and three copies will be forwarded to this office at the end of each week; one copy containing the full record of the telegraphic series of observations, one the record of the local series, and the third that of the mid-day observations. In filling up this form the *daily* means of the *local* (7.2 and 9 o'clock) and the *weekly* means of the *telegraphic* barometric and thermometric observations will be entered in their proper columns, and the words "daily" and "weekly" respectively added to the heading.

In the telegraphic series will be given, firstly, the mean of the morning; secondly, that of the afternoon; and thirdly, that of the midnight observations.

76. Form 5 will be used for all of the telegraphic reports, and will be made out each time in duplicate, one copy for deposit in the telegraph-office, for transmission by telegraph to this office, and the other for transmission by mail to the same place. Both copies must be filled up and signed in the manner indicated upon the form itself.

Each regular report will consist of *ten* words, arranged in two lines of *five* words each. At all stations designated by this office as *river* stations, the afternoon report will consist of *twelve* words, arranged in two lines of *six* words each.

The sixth space in first line of Form 5 will be used for the depth in feet above or below the established bench-mark whenever it exceeds eight feet, and the sixth space in second line for the odd inches.

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Whenever the depth does not exceed eight feet, the word "River" will be used to fill the space in first line, and the whole depth given in the second line in inches.

In furnishing the reports to the press, and in filling up the bulletin, Form 3, the daily change only will be given, as at present. This change will be obtained by taking the difference between the current report and that of the preceding day.

In filling up the form, the first space of the first line will be used for *name of station*, the second for *date* and *time* of report, the third for barometer, the fourth for thermometer, and the fifth for humidity. In the second line the first space will be used for state of weather, the second for velocity of wind, the third for upper clouds, the fourth for lower clouds, and the fifth for rain-fall. The cipher-words must, in all cases, be written plainly and correctly. The word "Blank" will be used when, from any cause, an observation is not taken.

The duplicate copies of the report for each day will be mailed weekly to this office from all stations.

77. Form 6 is a memorandum-receipt for property, and will be filled up with the number and kind of articles received, signed, dated, and transmitted promptly to this office.

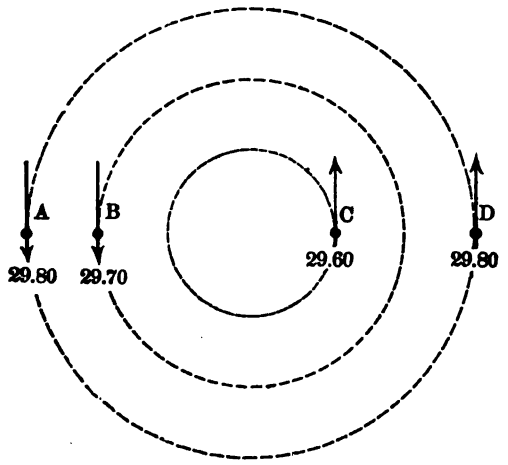
Detailed instructions in reference to this form will be given under the head of "Property."

78. Form 8 is the weather-map, to be printed or made out in manifold, as may be directed from this office, and shows the direction of the wind, state of weather, height of barometer, height of thermometer, and velocity of wind at each station. The arrow is always to fly *with* the wind, and *not toward* it like a vane. In printing or stamping these maps great care must be exercised to make the figures and different signs correctly and distinctly. Observers must never allow imperfect or illegible maps to leave their offices. To insure accuracy, the printed maps, before being issued, must be carefully compared with the reports received, and, if errors are found, they will be corrected on the map, if the corrections can be made without disfiguring it, and without rendering it illegible. If they cannot be so corrected, the whole edition will be destroyed, as it is better not to issue any map than one which is imperfect. One copy of this map will be sent to this office on Saturday of each week, unless special instructions are received to the contrary by the observer from proper authority.

79. Observers are authorized to trace upon these maps *isobars* or lines of equal barometric pressure, in accordance with the following directions:

1st. Ascertain by a general examination of the reports, after they are entered on the map, whether any of the lines of equal pressure will, when drawn, traverse a large portion of the map, and, if this is found to be the case, these long lines will be drawn first. The lines of 29.90, 30.00, and 30.10, on the map, opposite page 12 of the circular issued by this office, on the Practical Use of Meteorological Reports and Weather-Maps, are illustrations of this principal isobar or *base-line*.

2d. If decided differences in barometric readings are observed to exist between neighboring stations, enter upon the map with a red lead-pencil little dots or dashes, intermediate between any two of them, to represent the points at which the barometric



reading would be exactly 29.50, 29.60, &c., or 30.00, 30.10, &c., supposing the pressure to change uniformly in the space between the two stations. The precise position of these intermediate points can usually be found with sufficient exactness by estimation with the eye.

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The interpolated isobars—that is, those which are drawn between stations, as in the preceding paragraph—cannot be relied upon as perfectly accurate, but the amount of error need not exceed two-hundredths of an inch in the position of any one line, if proper attention is paid to the following points: *First.* The isobars must not be extended west of the one hundredth degree of longitude west of Greenwich, (or the meridian twenty-three degrees west of Washington,) as the barometric readings of very elevated stations cannot at present be combined with those of an altitude of fifteen hundred feet or less. *Second.* The barometrical readings reported from Mount Washington must not be used in drawing the isobars over the New England States. *Third.* Certain allowances or corrections must be made for the readings reported from several stations whose elevation is not yet accurately determined. These corrections will be furnished from this office upon application.

When a sufficient number of dots or dashes have been made to enable the observer to trace the course of one or two of the principal isobars, they will be joined together by a curved line passing through, or nearly through, all of them, without following any of the minor irregularities that would be possibly caused by slight errors in the interpolations.

Any perplexity that may arise in drawing these lines, as to their proper route, may generally be removed by considering the direction of the wind, as reported from each station. Thus, if from stations A, B, C, and D reports are received as shown in the figure, it would be seen at once that between B and C there was a central area of low pressure around which the wind circulated in the direction indicated by the arrows, and the isobars would therefore be drawn as shown by the dotted lines.

When the lines are very much crowded together, as happens in a few severe storms, the isobars may be drawn for every two-tenths of an inch, instead of every one-tenth.

Each isobar should be plainly marked at its extremities with the figures indicating the corresponding pressure, and the central areas of highest and lowest pressure should be marked "high" and "low," respectively, unless by so doing the appearance of the map would be injured by the complication of the lines.

When the observer has any doubt as to the course of a given isobar, he should omit it entirely, or simply indicate its probable position by a broken instead of a full red line. Observers will forward to this office weekly examples of their isobaric maps, and will not post them in any public place until officially authorized to do so.

80. Form 15 is for the Synopsis and Probabilities, and a copy properly filled will be posted with each bulletin at all stations where they are received. The midnight synopsis will be used with the morning bulletin, and the morning synopsis with the afternoon bulletin, whenever practicable. At stations where the afternoon and not the midnight synopsis is received, this will be used with the bulletin of the next morning.

In all cases the time and date of issue from Washington must be plainly written upon the form.

81. When observers are compelled to copy reports from the newspapers, and time and date are not given, they will call the especial attention of the publishers of such papers to the omission and have it corrected, when possible, as a matter of justice to this office and to their readers.

82. Form 16 is the blank meteorological chart to be made out monthly at each station, and forwarded by mail to this office as soon after the close of each month as practicable.

The following instructions, taken in connection with the illustration given in the annual report of the Chief Signal-Officer for 1871, will enable observers to make them out properly:

For the thermometer, take the weekly reports on Form 4, beginning with the morning report of the first day of the month; with a sharp pencil make a dot on the chart at the height at which the dry-bulb thermometer stood at 7 a. m., (or the first observation,) at its 7. a. m. relative distance from the 12 m. line, as shown in the illustration referred to. Do the same with each of the six observations. Join these dots with the pencil and afterwards trace with ink.

Continue the same way with the wet-bulb thermometer, barometer, velocity of the wind, and the relative humidity, marking the direction of the wind in small letters opposite each observation.

The average amount of clouds for each day will be given in the spaces immediately above the 29.00 inch line in the chart dividing the squares into 1, 2, 3, and 4-4ths, respectively.

The dark lines for rain are placed with the right edge at the point where the rain ceased.

The scale may be changed for a greater fall of rain than 1¼ inches, or a greater velocity of wind than thirty-five miles per hour.

Different colored ink may be used for the several lines, if preferred.

In forwarding these charts by mail they should never be folded, but rolled neatly and compactly without any central core. As they are intended for future reference care should be taken in making them out accurately and neatly.

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83. Form 19 is the error-sheet, which accompanies the weekly packages of Form 2 sent by observers to this office. It will be filled up in the following manner:

In the third column will be entered the official numbers of all regular reports missing when the telegraphic circuits are closed. In the fourth, fifth, and sixth columns will be entered, on the same line under appropriate headings, the numbers of all reports of previous dates which may have been received during the time designated at the left-hand of the form. In the seventh column the time the last report was received will be noted. Receipt of duplicates, corrections, and reports not in schedules, causes of delay, &c., will be noted in the column headed "Remarks." The number of words must include all reports due at the station which may have been received up to the time the circuits were closed, whether they were of the current or previous dates. Duplicates and corrections are not to be counted. *Each line of the form must contain a complete record of the work for the date and time specified.* The record will be made up from Form 2 immediately after each report.

84. In filling up Forms 19 and B, the following-named stations will be designated by the letters placed opposite each name:

Booneville.....A.	Lexington.....K.
Brownsville.....B.	Little Rock.....L.
Brunswick.....C.	Marietta.....M.
Confluence.....D.	Morgantown.....N.
Evansville.....E.	New Geneva.....O.
Freeport.....F.	Oil City.....P.
Hermann.....G.	Paducah.....Q.
Jefferson City.....H.	Plattsmouth.....R.
Kansas City.....I.	Saint Joseph.....S.
Le Claire.....J.	Warsaw.....T.

85. Form 22 is used for the record of the daily and monthly means of the barometer and thermometer, with the prevailing direction of the wind and amount of rain-fall for the month. In filling up this form the means of the barometer and thermometer for the local series of observations will be obtained by dividing the sum of the 7 a. m., 2 p. m., and *double* the 9 p. m. observations, by four. Manifold copies of this form, properly filled up, will, at the end of each month, be furnished by observers to as many of the newspapers and other periodicals published at their stations as may desire to make use of it. One copy will also be forwarded to this office on the first day of the month succeeding that of which it forms the record.

86. Each observer will rule out, on heavy white paper, a blank form similar to the one given below, and post it up in a conspicuous place in his office. On this form he will enter, on the first day of each month, the data for the preceding month indicated at the top of the several columns in the form.

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Date.	BAROMETER.						THERMOMETER.						WIND.						Amount of rain and melted snow.		Number of auroræ.
	Mean.	Mean of—			Range.		Mean.	Mean of—			Range.		Prevailing direction.	Number of miles.					Total.	Amount in inches.	Number of days on which rain or snow fell.
		A. M. observation.	P. M. observation.	Night observation.	Highest.	Lowest.	Difference.		A. M. observation.	P. M. observation.	Night observation.	Maximum.	Minimum.	Difference.		Noon to 6 p. m.	6 p. m. to midnight.	Midnight to 6 a. m.	6 a. m. to noon.	Maximum velocity during month.			
187 .																							
January																							
February																							
March																							
April																							
May																							
June																							
July																							
August																							
September																							
October																							
November																							
December																							
Annual means																							

GENERAL REMARKS.

January .....
February .....
March .....
April .....
May .....
June .....
July .....
August .....
September .....
October .....
November .....
December .....

Station ——.

—— ——, Observer.

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87. The weekly mean of the telegraphic observations of the barometer and thermometer will be obtained in the following manner: Divide the sum of the a. m. telegraphic observations by the number of observations, and the quotient will be the mean of the morning observations; proceed in the same manner for the afternoon and night observations, and enter the quotients separately under the head of "Remarks," on Form 4.

The monthly mean of the telegraphic observations will be obtained in the same manner.

The local observations made at 7 a. m., 2 p. m., and 9 p. m. will not be used in getting this mean.

ILLUSTRATIONS.

Barometer; telegraphic observations, 7.35 a. m., 4.35 p. m., and 11.35 p. m., Washington mean time.

A. M.	P. M.	Midnight.
30.04	30.04	30.08
30.09	30.11	30.06
30.09	30.00	29.89
29.83	29.76	29.70
29.76	29.83	29.96
30.04	29.96	29.89
29.85	29.66	29.60
7)209.70	7)209.36	7)209.18
29.957	29.908	29.883

Mean of a. m. observation 29.957
Mean of p. m. observation 29.908
Mean of midnight observation 29.883

Thermometer; telegraphic observations, 7.35 a. m., 4.35 p. m., and 11.35 p. m., Washington mean time.

A. M.	P. M.	Midnight.
24	37	32
32	42	32
27	47	38
40	46	40
34	32	24
23	42	38
34	61	52
7)214	7)307	7)256
30.6	43.8	36.5

Mean of a. m. observation 30.6
Mean of p. m. observation 43 8
Mean of midnight observation 36 5

88. In calculating the mean of the thermometer readings at low temperature, the following rule will be observed:

"When minus readings occur, the difference between the sum of the positive and the sum of the negative numbers is to be taken. This difference, which is the total sum, has the sign of the greater of the two partial sums, and will be divided by the total number of observations."

The quotient obtained by this division will be the mean sought.

The following are examples:

Example 1.

	+ 70
	+ 50
	+ 20
	0
Sum of positive	+ 140
Sum of negative	0
Total sum	+ 140
Number of observations	4
Mean	+ 35

Example 2.

	+ 60
	+ 20
	0
	— 5
Sum of positive	+ 80
Sum of negative	— 5
Total sum	+ 75
Number of observations	4
Mean	+ 18.75

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Example 3.

	+ 2
	− 5
	0
	+ 4
	− 7
	+ 5
	− 15
Sum of positive	+ 11
Sum of negative	− 27
Total sum	− 16
Number of observations	7
Mean	− 2.3

Example 4.

	− 5
	0
	0
	0
	0
	0
Sum of positive	0
Sum of negative	− 5
Total sum	− 5
Number of observations	6
Mean	− 0.8

89. Form 23 is for use at stations designated for the display of cautionary signals, and will be filled up and forwarded weekly to this office during the period signals are ordered. Under the head of "Remarks" will be recorded the highest velocity reached by the wind during the time the signals were displayed.

When no signals have been ordered during the week, this form must be forwarded and show, under the head of "Remarks," the highest velocity attained by the wind during the week.

Form 24 is the weekly report of the number of bulletins, maps, &c., issued at each station, and will be forwarded to this office in the same envelope with the other regular weekly reports.

All publications that have been issued at any station during each week will be reported on this form, and if special publications are made in addition to those noted in the heading of the several columns of the form, observers will rule additional columns for such publications.

90. Form 25 is the one upon which all official telegrams to this office must be written. As everything transmitted is charged for, unnecessary words must be avoided. The full date and time of filing message will be written *above* the upper heavy line, while only the name of the city and the day of the month will be written below. The signature must contain only the surname of the sender and the word "Observer." Only the matter written between the heavy lines is to be transmitted.

91. Form "A" will be filled up properly and carefully under each heading, and mailed on Monday of each week to this office. In the column headed "Nature of message," will be indicated *briefly* whether the message rendered was a weather-report or ordinary message, and in the column of "Remarks" give such additional information as you may think necessary to a full understanding of each case.

This form will be sent in blank if no messages have been refused.

92. Form "B" will be forwarded promptly to this office at the end of each week, using but one form, except in cases where it is necessary to use more to complete the record, taking great care to keep a correct record of number of telegrams sent or received. In case there should have been no telegrams received or sent during the week, the form will be sent in blank. All telegrams must be properly dated and signed.

BOOKS OF REFERENCE AND RECORD.

93. The following books of reference and record will be furnished by this office to each station:

For reference.—Guyot's Meteorological Tables; Buchan's Handy Book of Meteorology; Loomis's Treatise on Meteorology; Myer's Manual of Signals; Piddington's Horn Book; Manual of Military Telegraphy; Annual Reports of the Chief Signal-Officer; Practical Use of Meteorological Reports and Weather-Maps; Instructions to Observer-Sergeants, Signal-Service, U. S. A.; Smithsonian Directions for Meteorological Observations.

For Records.—Journal; Daily Record of Observations; Record of Bulletins; Record of Letters Sent; Record of Letters Received; Index to Letters Sent and Received; Original Record of Observations; Weather-Map of the United States.

94. In the journal will be entered daily all matters of interest not provided for in the various forms, such as meteoric and auroral displays, earthquakes, and unusual atmospheric appearances and disturbances, giving in all cases, when possible, the time of beginning and duration of each. Especially will the observer enter a detailed account of the characteristic phenomena of every serious storm that passes over or near his station. In this book will also be noted all changes in location of office or instruments, the condition of the instruments, and when damaged in any way the cause will be stated. A monthly abstract of the entries in the journal will be forwarded to the Chief Signal-Officer within five days after the expiration of each month. This abstract must contain all the important entries of the journal, the condition of all in-

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struments in use on station, and also the comparative readings of the barometer referred to in paragraph 31.

95. Observer-sergeants will be particular to note every display of aurora, seeking by inquiry of others, if necessary, to make their record complete.

If the heavens are obscured by clouds so that the aurora, if present, cannot be observed, the word "obscured" will be entered in that part of the record devoted to auroral displays. If the sky is sufficiently clear for observation, the words "aurora" or "no aurora" will be entered according as one is visible or not. When observed, a full account of the phenomenon will be entered in the journal, showing the exact minute of beginning and ending of the aurora, and the principal phases of changes that it experiences. The following particulars should be especially noted: the azimuth and altitude of each extremity and of the crown of any arch of light, and the same data for any corona or glory that may be formed.

When the observer is familiar with the names of the principal fixed stars, he may locate the arch or crown by reference to them, but it is preferable that he should observe directly the altitude and azimuth.

Altitudes are expressed by degrees from the horizon to the zenith. If any circle be divided into the 360 parts and radial lines connect these parts with the center, each pair of lines subtend an angle of one degree; the fourth part of the circle will subtend an angle of ninety degrees or one right angle, and the corresponding radii are perpendicular to each other; thus the zenith (that point in the heavens immediately above the observer) is ninety degrees from the horizon, or, in other words, its altitude is 90°.

A point half way up from the horizon to the zenith has an altitude of 45°.

Azimuths are also expressed in degrees but are measured on the horizontal plane, and will be recorded as is done in astronomy, from the south point to the westward, passing successively the west, north, and east points of compass until 360° have been passed over and the south point is again reached.

Observers must be particular as to the date of the aurora, and when it begins in the evening of one day and continues into the early morning of the next day, it will be entered as occuring on the *first* day, but its details will be given in the record as occurring between the hours of its actual beginning and ending. Thus, an aurora that began on the evening of the 12th of January, and continued until the early morning of the 13th, would be entered as the aurora of the 12th, but its details would be recorded as occurring, for instance, between the hours of 10 p. m. of January 12, and 2 a. m. of January 13.

All entries in the journal of occurrences and observations of any one day will be made under or opposite to that day, and not be entered as a subsequent date as is frequently done. For example: an auroral display ocurring May 23, should be entered opposite that date, and not referred to on the 24th, as having occured "last evening."

Observers must pay particular attention to accuracy in the use of the terms "morning" and "evening," and will be governed by the following instructions in reference to them:

Midnight is the moment 12h. 00m. 00s., and is the beginning or first moment of the new day and should receive the date of that day. Thus, whatever happened in the afternoon of June 10, at 11h. 59m. 59s. happened at 11h. 59m. 59s. p. m., June 10; whatever happened one second later was at midnight of June 10 and 11, and at one second later still at 12h. 00m. 01s. a. m. of June 11; at midday of same date whatever happened at 11h. 59m. 59s. happened at 11h. 59m. 59s. a. m., June 11; at one second later it was noon June 11; at one second later still it was 12h. 00m. 01s. p. m., June 11.

96. The daily record of observations will be an exact copy of Form 4, and filled up in the same manner. The several series of observations can be entered in the same book, care being taken to date and time them properly. The telegraphic series may be entered in the beginning of the book, and the local series at the end, while the midday reports may follow either of the two.

97. The record of bulletins will be filled up regularly from the daily bulletins, of which it is a copy.

On stations where telegraphic reports from other stations are not received, or where such reports do not exceed nine in number, a whole page in the bulletin-book will *not* be used in entering each bulletin. To economize space, the reports will be entered in the same order as at present, but as many days will be written upon each double page as the space will allow; each day being distinguished by a proper heading as to date, and separated from the preceding one by a red-ink line.

Wherever necessary, the printed names of stations will be ruled out, and those from which reports are received written in red ink, in the blank spaces between the original names, and in regular order.

98. In the books of "Letters sent" and "Letters received" will be entered all letters sent, and an abstract of all those received relating to the official business of the station. The original letters received will be properly briefed and numbered, and filed away for reference. In the book of "Letters received" will be entered a record of all official letters and telegrams received at the station.

99. All communications on letter-paper will be folded in three equal parts from the

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bottom to the top; and if written on different sized paper, will be folded in such manner as to conform to the above size. All communications will be entered in the order of their receipt and numbered continuously, beginning at one on January 1 of each year, (or at the date of the receipt of the first letter, when a station is opened during the year,) and each letter will be known by this number in all references made to it in the office-records. Inclosures to letters will not be indorsed, but simply numbered, in red ink, as "Inclosure No.—" to said letter. On the top of the first fold will be entered, in red ink, the number of the letter, the station, and the year. This will be followed by the following entries in black ink:

1st. The place where written and date.

2d. Name and official designation of writer or department or office from which it is written.

3d. A brief synopsis showing the general purport of the letter. In this synopsis or brief everything of importance in the letter will be concisely stated.

Following this will be given in red ink the number of inclosures if any, in the letter, and such references as may be necessary to show where other letters connected with it can be found in the records. At the bottom also in red ink the date at which the communication is received will be entered, (see Examples A and B.) If the communication is received by telegraph the word "telegram" will be written in red ink immediately below the brief.

The following illustration shows the manner of entering letters in the record:

LETTERS RECEIVED.

When received.	Name of writer.	Date and purport of letter.
April 17, 1873 **90**	Office Chief Signal-Officer, by First Lieut. H. Jackson.	Washington, April 12, 1873, directs that one stylus, dropped from return for 1st qr., be taken up and correction made on retained copy. **Retained return corrected April 17, 1873.** **(Number of letter and indorsed action in red ink.)**
April 19, 1873 **94**	Office Chief Signal-Officer, by Capt. H. W. Howgate. **(One inclosure.)**	Washington, April 12, 1873, directs that a weather-map be daily furnished to James R. Stone, Racine, Wis., as requested by Louis Decker. **Delivery of map commenced April 20, 1873.** **See L. S., Vol. 1, page 59.**

One or more lines will always be left below the brief for noting, as shown in the illustration, any action taken in consequence of said letter, as well as the entry-marks of any letters, either received or sent, especially connected with it. In these references letters received are referred to by number and year, and letters sent, by volume and page.

In case the letter received is to be returned with an indorsement, such indorsement will be entered in full in the space immediately below the brief, and two additional lines will then be left in which to note any future action.

LETTERS SENT.

In this book will be entered all communications sent from the office by letter or telegram, excepting only such indorsements as are entered in "Letters received," in accordance with the instructions contained in the preceding paragraph. All proper names appearing in the body of the letter will be underlined with red ink. In the margin will be given in red ink the entry-marks of any letter, either received or sent in connection therewith, letters received being referred to by number and year, letters sent by volume and page. Exact copies of all telegrams sent will be entered in full, and marked "Telegram" in red ink. The following illustration of the manner of entering letters sent will show the manner in which the several notes are made. [The words and figures in brackets indicate red ink.]

[6] [LETTERS SENT.] [59]

"MILWAUKEE, WIS., *May* 3, 1873.

"To the CHIEF SIGNAL-OFFICER OF THE ARMY:

"GENERAL: I have to advise you that I am verbally informed by Mr. Louis Decker that Mr. J. R. Stone, of Racine, Wis., has removed to Oregon, and that in consequence I have this day discontinued the map ordered by communication from your office under date of April 12, 1873.

[L. R. 94. Milwaukee, 1873.]

"I am, respectfully, yours,

"H. M. LUDWIG,

"*Observer-Sergeant, Signal-Service, U. S. A.*"

NOTE.—In case any other letters had passed in this connection, the entry-marks would be entered in the margin.

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In letters received, each proper name will be followed by the number of the letter in which it is to be found; if it is the written name it will be entered in black ink, otherwise in red ink. In letters sent, the proper names will be followed by the number of the page on which the letter containing the name is to be found; if it is the signature of the person writing the letter, it will be entered in black ink, otherwise in red ink. Each name will be entered but once and the numbers will follow it successively, as follows:

"Office Chief Signal-Officer, 1, 3, 4, 8, 10, &c.
"Wind-vane, 3, 10, 29.
"Wentworth, H. W., 18-24-26."

INDEXING.

The alphabetical index-book furnished the observers from this office will be kept up regularly from day to day in connection with the books of letters sent and received, and must show the names in proper order of all official correspondents of the observer, with references to volume and page where their communications appear.

General orders, special orders, and circulars, will be filed away separately, and in such manner that they can be found readily, and will be roughly bound by the observer at the end of each year. General orders and circulars will be indorsed in red ink at the bottom of the first page, with the name of station and date of receipt, as follows:

"Received (Milwaukee,) ————, 187—."

Spare maps and bulletins will be neatly folded in letter size and tied up in packages containing a month's issue and filed away where they will be easily accessible.

Example A.

WAR DEPARTMENT, OFFICE OF THE CHIEF SIGNAL-OFFICER,
DIVISION OF TELEGRAMS AND REPORTS
FOR THE BENEFIT OF COMMERCE AND AGRICULTURE,
Washington, D. C., April 12, 1873.

Observer-Sergeant H. M. LUDWIG, U. S. A.,
Milwaukee, Wis.:

SERGEANT: Inclosed herewith is a copy of a letter from Louis Decker requesting that a weather-map be daily furnished to Mr. James R. Stone, Racine, Wis. You will place Mr. Stone's name upon your list and comply with his request.

Very respectfully, &c.,

H. W. HOWGATE,
Second Lieut. and Bvt. Capt., U. S. A., A. S. O. and Assistant.

94. MILWAUKEE. 1873.

WASHINGTON, April 12, 187.

Office of Chief Signal-Officer,

by

Capt. H. W. Howgate.

Directs that a weather-map be daily furnished to Mr. J. R. Stone, Racine, Wis., as requested by Mr. Louis Decker.

(One Inclosure.)

See L. S., Vol. 1, page 59.

Received Milwaukee, Apr. 19, 1873.

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Explanation.

All office marks in red ink, brief in black ink. "L. S., vol. 1, page 59," refers to letter subsequently written in regard to this map.

Example B.

WAR DEPARTMENT, OFFICE OF THE CHIEF SIGNAL-OFFICER,
DIVISION OF TELEGRAMS AND REPORTS
FOR THE BENEFIT OF COMMERCE AND AGRICULTURE,
Washington, D. C., April 12, 1873.

Observer-Sergeant H. M. LUDWIG,
Milwaukee, Wis.:

SERGEANT: I have to inform you that one stylus dropped by you from your property return for first quarter, 1873, must be taken up until inspected and condemned by proper authority. You will make the necessary correction in the retained property-return for that quarter.

Respectfully, yours,

H. JACKSON,
First Lieut. Seventh Cav., P. & D. O.

90. MILWAUKEE. 1873.

WASHINGTON, April 12, 1873.

Office of Chief Signal-Officer,

by

1 Lt. Henry Jackson.

Directs that one stylus, dropped from return for 1st Qr., '73, be taken up and correction made on retained copy.

Received April 17, 1873.

(Copy.)

MILWAUKEE, WIS., *April* 9, 1873.

To the CHIEF SIGNAL-OFFICER OF THE ARMY:

SIR: I have the honor to request that the observer-sergeant in charge of the station in this city be directed to furnish a weather-map daily to Mr. James R. Stone, Racine, Wis.

Respectfully, yours,

LOUIS DECKER.

94. MILWAUKEE. 1873.

(In red ink.)

Inclosure No. 1.

(In red ink.)

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Letters transmitting checks for pay of observers are not merely personal, but must be carefully entered and preserved.

The receipts for pay should be copied in "Letters sent." Great care should be taken to specify the amount of any bills forwarded in a letter, and also to note the date of all payments, under the brief of the letter, in the record-book containing the remittance.

100. The large weather-map of the United States will be hung up in the principal room of the board of trade, or chamber of commerce, or both, and the state of the weather will be shown upon it in the manner already described, as soon after the receipt of the morning report as is practicable.

101. All books of reference and record must have the name of the station to which they belong plainly written on the fly-leaf.

GENERAL INSTRUCTIONS.

102. Each observer in charge of a station not supplied with an assistant from this office will, as soon as practicable after arriving at his station, make arrangements with some competent person to perform his duties in case of sickness or disability. The person so selected must be carefully instructed in the use and care of the several instruments, in the manner of taking the observations, of making out and forwarding the weather-reports sent from the station, and the proper disposition of those received from other stations. His name and regular post-office address will be reported to this office as soon as the selection is made. The employment of this assistant will be temporary only, and he will be paid at the end of each month in which the services were rendered, at the rate of compensation fixed by the Chief Signal-Officer, on forwarding the proper vouchers to this office, with a certificate from the observer-sergeant stating the number of days employed, with the dates in each case.

103. In case of sickness or disability rendering an observer or assistant observer incapable of performing his duties, the observer in charge will report the fact by telegraph to the Chief Signal-Officer, and will forward by mail the certificate of his attending physician.

104. At stations where there is no medical officer a resident practitioner will be employed, whose account, made out in duplicate, on the form given below, together with the prescriptions when medicines have been required, will be transmitted for payment to the Surgeon-General of the Army, through the office of the Chief Signal-Officer, Washington, D. C.

105. No account of a resident practitioner other than a medical officer of the Army at any of the stations mentioned can be paid unless it shall clearly appear that the assistance of the medical officer designated could not be obtained in the special case. Should the medical officer be temporarily inaccessible upon the occurrence of a case so sudden and serious as to require immediate attention, he will nevertheless be called upon as soon as possible, and his certificate that the case required another practitioner to be employed under the circumstances will be necessary before the account of the latter can be paid.

106. An enlisted man obtaining medical assistance or medicines from other sources than a medical officer of the Army, when the latter can be called upon, will be personally responsible for the account therefor, such not being authorized by the United States.

107. Bills for articles of food, or diet of any kind, liquors, wines, mineral waters, patent or proprietary medicines; instruments or appliances, such as syringes, trusses, or suspensory bandages, will not be allowed by the Medical Department.

108. When the services of a nurse are necessary, a separate bill for the nursing will be made and certified in the same manner as that for medical attendance.

The UNITED STATES,

To ——— ———, M. D., DR.

For medical attendance furnished to ——— ———, suffering from ——— at ——— from ——— to ——— ..... $———

For medicines as per accompanying prescriptions ..... ———

———

I certify that the above account is correct and just; that the services were rendered as stated and were necessary; and that the charges do not exceed those customary at this place.

———— ————, *M. D.*

Subscribed and sworn to before me this — day of ———, 187–.

———— ————,

————— ————.

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I certify that the above account is correct and just; that the services were rendered as stated, and were necessary; that I was on duty at ————, and could not secure attendance from a medical officer of the Army.

————— ————,
Observer-Sergeant, Signal-Service, U. S. A.

Sworn to and subscribed before me this — day of ——, 187–.

————— ————,
————— ——— ——.

Approved:

————— ————,
Brig. Gen. (Bvt. Ass'g'd) and Chief Signal-Officer of the Army.

When the attendance has been to an assistant the form will be altered accordingly, and the account forwarded through the sergeant in charge, who will indorse his remarks upon it, and inclose in letter of transmittal to this office.

109. At stations where there is a medical officer of the Army on duty, observers will be duly notified and provided with authority to call upon him for medical assistance. When medicines are not furnished directly by the Medical Department, but through a druggist, on the prescription of a medical officer, and the bill of the druggist is presented to the patient, that bill in duplicate, approved by the medical officer and receipted, will be attached to an account made out in the name of the patient, the above form being altered according to the facts, and the only sworn certificate necessary being that of the patient.

110. At all stations where there is a private soldier on duty as an assistant, the observer-sergeant in charge will give especial attention to his instruction in the theory as well as the practice of meteorology, signaling, and telegraphy.

In order that this may be properly done, the sergeant will require his assistant to give a recitation each week from one of the following-named text-books, going through them in the order given: Loomis's Treatise on Meteorology, Myer's Manual of Signals, Manual of Military Telegraphy, and the Instructions to Observer-Sergeants. The assistants will be required to understand thoroughly the first six chapters of Loomis, the Manual of Signals to page 96, and all of the other text-books, until satisfied that the subject is thoroughly understood, or that the assistant is wanting in capacity to understand it.

The ordinary station-work will be fully explained, and the reasons for each instrumental correction given in detail. A brief weekly report will be made to this office, showing the nature of the instruction given and progress made during that period.

The character of recitations will be stated each week on Form 30, under the head of remarks.

This duty must be carefully and faithfully performed, in order that worthy men may receive the promotion due them, and unworthy ones be disposed of.

No application from assistant observers for promotion to the grade of sergeant will be favorably considered until this course of instruction has been completed in a satisfactory manner, and is so reported by the observer in charge.

111. Assistants on duty as printers will be required to make the same recitations as other assistants, and will be borne on the weekly return in the same manner.

112. In the absence of serious special reasons or exigencies of the service, no applications for examination before the board of examiners at this office for promotion to the grade of sergeant will be favorably considered, except when made by enlisted men of the Signal-Service Detachment, United States Army, who shall have performed satisfactorily the duty of assistant to an observer-sergeant on station, or similar duty at this office, for a period of six months, and have after recall from station gone through the regular course of instruction at Fort Whipple. Such applications, by men on duty as assistants, must be made in writing, through the observer-sergeant in charge of station, (who will in all cases indorse his report of the character, habits, and ability of the applicant,) and will be acted upon by the board when vacancies exist in the authorized number of observer-sergeants.

113. The publication of the Government weather-reports by newspapers must be done without expense to the United States.

114. In reference to the issue of weather-maps, observers at stations where they are issued must bear in mind that these maps are printed for gratuitous distribution, and neither money nor other form of compensation will be charged or received for them by any observer-sergeant or assistant observer, or their agents, either for the maps themselves or for their delivery, except when such delivery is made through the post-office at the request of the parties to whom they are addressed. In such cases the parties wishing to be supplied with maps will be required to furnish the observer sufficient money for the prepayment of postage upon them at the rate of one cent per copy. Observers must keep a careful account of all moneys received by them for this purpose, and make a weekly report of the same to this office, stating the name of the par-

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ties and amount received from each, and the number of maps furnished during the week to each person.

115. The publication and distribution of weather-maps constitute only a part of the regular daily duty of each observer, and while they are expected to devote a liberal amount of time to this work, it must not be done to the prejudice of their other duties.

116. For the purpose of systematizing the distribution of maps, observers will divide the territory to be traversed into as many districts as there are assistants on duty at their respective stations. The boundaries of the district assigned to each assistant must be clearly defined; the time required to traverse it ascertained by the observer by actual trial, and the places for the delivery of each map distinctly pointed out to the assistant. Within the limits of these districts maps will be delivered regularly at the places and to the persons designated by this office, and to those selected by the observer with the approval of the chairman of the meteorological committee. Weekly reports will be made to this office of all additions to the lists of persons and places so selected.

117. All applications for maps from parties living beyond the district limits, referred to in the preceding paragraph, will be forwarded to this office for action, and if approved, maps will be furnished on personal application at the observer's office, or through the mail, as provided for in the first paragraph. This information will be posted up in the office of each observer printing and distributing maps.

118. Observers will select such places for posting the daily weather-bulletins and maps as will insure their widest publicity at all hours of the day and night, and will report the names and locations of the places thus selected to the Chief Signal-Officer. At the same time they will report the location of their own offices, giving name of street and number. This information will also be furnished to the manager of the telegraph-office charged with the transmission and receipt of the reports.

119. Observers must not make use of the telegraph in communicating with the central office in Washington, except in cases of the utmost importance. Where the use of the telegraph is considered unnecessary by the Chief Signal-Officer, the cost of the telegram will be charged against the observer sending it. The official form must always be used for telegraphic communications.

120. Communications to this office on official business will be written on the official size of letter-paper, inclosed in an official envelope, and directed to "The Chief Signal-Officer of the Army, Washington, D. C." The words "Official Business" will be written on the left-hand upper corner of the envelope.

121. Half sheets of paper will be used in all cases in which letters are completed on the first page. When more than one page is required a whole sheet will be used.

122. Communications written on letter-paper will be folded in three equal folds; on foolscap or legal-cap paper, in four equal folds, parallel with the ruling. Observers must not brief any official letter forwarded to this office, and must give the full names of all persons referred to.

123. All official communications received by observers, wherever serving, from parties not connected with the signal-service, will be immediately referred to this office for such action as may be considered necessary.

124. No letters containing information in reference to the signal-service will be made or sent to any person or persons by observers on station until such reports or letters have been submitted to and approved by the Chief Signal-Officer.

125. Observer-sergeants and their assistants will be especially neat and careful in their dress; and any negligence in this particular coming to the knowledge of the Chief Signal-Officer will be considered sufficient cause for the reduction of the offender to the rank of a private soldier.

126. All enlisted men on station, wherever serving, will be inspected in uniform, and inspecting officers will, in their reports, make special mention of the uniform of each man inspected, and will also make neglect of duty in connection with the uniform a subject of charges. The coat belonging to the uniform will be that described in General Order No. 92, War Department, Adjutant-General's Office, October 26, 1872. Men serving on stations may wear the forage-cap described in that order. Prompt requisition will be made for this uniform upon the property-officer of this office whenever necessary.

127. Observer-sergeants will not comprise in the same communication matters relating to different subjects, nor their meteorological observations and general details of duty, with those relating to property received or disposed of, communication or pay-vouchers, bills, or any other particular involving money or property accountability.

Letters of transmittal, application, or explanation, under these two general heads, must be written on separate sheets of paper, but may be sent in the same envelope as a matter of economy.

128. Upon the receipt of an order from this office to lower a cautionary signal that may have been displayed at any station, the observer will collect the necessary data

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from mariners and others in reference to benefits, &c., derived from such display, and will report the same, together with comments that may have appeared in the papers, to this office. When the signal has not been justified the fact will be stated.

129. Observers will give close attention to the observation and record of all local premonitory signs of storms or changes of weather, and report them promptly to this office. The following points should be particularly noted: Direction and force of the wind; kind, direction, motion, and appearance of the clouds; action of the barometer and thermometer before, during, and after a storm or change of weather, and such other purely local causes as appear to influence the results.

130. The attention of observer-sergeants is directed to the fact that they are required to make their reports absolutely correct, and that any shortcoming in this respect renders them liable to punishment. Aside from this, it should be kept constantly in mind that a single incorrect report may cause the loss of life and property to an unknown amount, and all reports must be made with this responsibility clearly in view. Whenever an observer is unable from any cause to get in his report, properly corrected, at the regular hours of report, he will *not* send the uncorrected portion, but will write the word "Blank" in each of the spaces that would otherwise have been occupied by this portion of the report. Observers will *never* send any report or part of report which they have reason to believe is incorrect, and will bear in mind that it is safer and more in accordance with instructions to omit a report than to make a false one.

131. No official reports will be forwarded to this office without being carefully compared with the original records from which such reports are made. Observers having assistants will have the latter read the original matter, and the observer will check and correct the copies to be forwarded to this office, signing the reports only after he has thus assured himself of their *absolute correctness*. Special attention will be given to Form 22, and the several columns will be added up *twice*, both by the observer and assistant.

Observers without assistants will, if possible, procure some other person to assist in verifying their reports. All errors that may be discovered at the central office upon examination of the reports will be *checked* against the respective observers.

132. Upon the receipt of a circular at any station, the observer in charge will read it carefully and forward to this office a brief written synopsis of its provisions as understood by him. Where one or more assistants are on duty at a station the provisions of all circulars received will be carefully explained to each one. Whenever practicable this synopsis will be written on the margin of the printed form used to acknowledge the receipt of orders and circulars.

133. In the event of one or more instruments at a station becoming disabled and unfit for use, observers will fill up the space or spaces in the different forms intended for the readings of such instruments with the word "Blank," until they are repaired or replaced. If the instruments cannot be properly repaired at the station the observer will at once notify this office.

134. Observers are expected and required to improve themselves in the duties of their position, and are liable at any time after one year's service to be called before a board for their second regular examination.

135. On the first days of January and July (or within ten days thereafter) of each year, every observer-sergeant in charge of a station will make out and forward to this office a concise statement of the operation of his station for the preceding six months. This statement must show the changes (if any) that have been made, and the number of reports received, during that period, with the reason for such changes when known. It will also show the amount of public interest taken in the service, and the classes of citizens deriving the greatest amount of benefit from the reports. If any marked advantages to commercial or other interests have been derived from the use of the reports or display of cautionary signals, the facts in each instance will be briefly set forth.

136. Observers in charge of stations will mail, on Saturday of each week, a copy of that morning's issue of every daily newspaper published at their stations, which contain the weather-reports in any form.

137. All applications from observer-sergeants or assistant observers of the Signal-Service, United States Army, for furloughs or official privileges of any description, must be made directly to the Chief Signal-Officer of the Army.

138. The Secretary of War has power to grant discharges, which this office is authorized to promise when applied for on proper grounds, and at times when no special injury to the service would result therefrom; but as a rule no application for discharge will be favorably entertained until after two years of faithful service, and not then, except as above specified. In cases of urgent necessity such application may be made by telegraph, but in all ordinary cases will be in writing, and forwarded by mail.

139. All communications to this office from an assistant observer must be forwarded through and indorsed by the observer-sergeant in charge of the station at which he is serving.

140. Whenever any observer-sergeant is relieved from duty in charge of a station, he

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will, before leaving said station, inform his successor of the location of all map-frames, bulletin-boards, and other Government property for which he is responsible to this office. He will also introduce him personally to the members of the meteorological committee or committees of the chamber of commerce and board of trade, and give him such information in reference to the past record of the station and its local meteorological and other peculiarities as will enable the duties of the station to be intelligently discharged by such successor.

A written statement that the provisions of this paragraph have been complied with will be made to this office by both observers.

141. Parties desiring to purchase maps from this office will be required to forward the amount of postage on the same, in addition to the cost price of the maps as given below.

I. The several varieties of the weather-maps will be sold at the following prices:

Maps in one color, without reports or isobaric lines, 1¼ cents each.

Maps in two colors, without reports or isobaric lines, 2 cents each.

Maps on manifold paper, without reports or lines, in books of 100 each, $2.75 per book.

Maps in one color, with current reports and isobars, 2 cents each.

Maps in two colors, with current reports, isobaric and isothermal lines, 3 cents each.

Postage on each map one cent additional, except the manifold ones, on which it will be 25 cents per hundred.

II. Parties desiring copies of any of the following-named publications of this office will be supplied until further notice upon the receipt of the amount of postage on each, as follows:

Annual report	24 cents.
Circular on the practical use of meteorological reports and weather-maps	10 cents.
Monthly Weather Review	1 cent.
Weekly Chronicle	1 cent.

III. All communications in reference to the purchase of maps, whether containing money or not, must be forwarded to this office for action, and payment for maps must in all cases be made in advance and the money sent direct to the Chief Signal-Officer, Washington, D. C. Observers are not authorized to sell maps.

142. One copy of this table of prices will be kept posted in the observer's office for the information of the public.

143. Observers receiving money from individuals to be applied to the payment of postage on maps, bulletins, or other official publications issued by them, will keep a record of the amount received, and forward a weekly statement to the Chief Signal-Officer, showing the amount on hand at date of last report, amount received and expended since that date, amount remaining on hand, and names of parties from whom it was received, with such other information as may be necessary.

INSTRUCTIONS TO OBSERVER-SERGEANTS, SIGNAL-SERVICE, UNITED STATES ARMY, AT RECRUITING STATIONS.

144. I. Instructions have been issued by the War Department to the superintendent of the general recruiting service of the Army to direct the recruiting officers of that service, stationed at certain points, to enlist and order to report to this office such men who can pass the required physical examination as may be presented to them by the sergeants of the signal-service stationed at those points, which now are the following, viz: New York, Philadelphia, Baltimore, Cincinnati, Saint Louis, Boston, Buffalo, Chicago, Cleveland, Detroit, Indianapolis, and Louisville.

The observer-sergeants in charge of those stations will, accordingly, as part of their duties, endeavor to obtain and present selected recruits to the recruiting officer of the general recruiting service at the same city.

II. Instructions have also been issued by the War Department to the superintendent of the general recruiting service of the Army to direct the proper recruiting officers not to reject men presented for enlistment by the sergeants of the signal-corps, on account of shortness of stature, if such applicants are not less than five feet four inches in height, or on account of age, if such men are over thirty-five and under forty years of age.

III. No applicant will be presented for enlistment who shall not, in all other respects than as above specified, fulfill the requirements of the recruiting regulations, of which, and of such changes in them as from time to time are made, information will be obtained by inquiry of the recruiting officer, who will take such measures for physical examination as are usual in the recruiting service. The responsibility of the observer-sergeant will be confined to the selection of recruits for presentation.

IV. With reference to so much of paragraph 1 in each of circulars No. 17 and 18, dated respectively June 7 and July 1, 1873, from this office, as states that men under twenty-one years of age are not enlisted, it will be understood that while the enlist-

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ment of minors is in general to be discouraged, special exceptions may be made by this office. The act of Congress approved May 15, 1872, (published in General Orders 30, War Department, Adjutant-General's Office, series 1872,) does not prohibit the enlistment of men under twenty-one, who are over eighteen years old, when the written consent of the parent or guardian is properly given, but on the contrary, by necessary construction, sanctions such enlistments when no other objection exists. Should a case arise which, in the judgment of the observer-sergeant, renders an exception to the general rule desirable from the special fitness of the applicant, the latter may forward to this office his application, with the written consent of parent or guardian, on which the observer-sergeant will make a full indorsement of the reasons for recommendation. It is supposed that if this office should except the applicant from the operation of the part of the circulars above mentioned, the recruiting officer would not refuse enlistment on the ground of minority alone.

V. Applicants shorter than five feet four inches will not be presented to the recruiting officer, nor will applications from them be forwarded to this office with a view to their enlistment at the station; but such men may be informed that if they present themselves at this office in compliance with paragraph 2 of circular No. 18, dated July 1, 1873, and pass the examination therein referred to, and also that of the surgeon here, they will be recommended for special exception to the requirements regarding height, which will probably result in their enlistment at this office. The observer-sergeant will not encourage any men to take this course except such as in his judgment are exceptionally fit for this service, a statement to which effect, with the reasons therefor, he will indorse upon a written application in each case for the examination referred to, in which the applicant will clearly state his understanding that he takes upon himself all expense of coming before the board, without any expectation of reimbursement by the United States in any event. Such application, so indorsed, will be brought by the candidate in person for his identification.

VI. No request for exception to the result of the physical examination by the examining surgeon at a recruiting station will be entertained at this office, unless made by the applicant in writing through the surgeon and recruiting officer and forwarded by the latter.

VII. Applicants for enlistment will be divided by the observer-sergeant into two classes, viz: Those for the "full" and those for the "field signal-service," as hereinafter more fully explained, but for both classes it is expressly directed that a high standard shall be maintained, and great care taken not to present recruits who are of bad habits or character so as to cast discredit upon the service, or occasion useless expense to the United States. Special pains will also be given by the observer-sergeant that each applicant shall, before his presentation to the recruiting officer, fully understand for which of the two above-mentioned classes he enlists, with their several requirements, and the recruiting officer will be requested to note in the margin of the enlistment paper and also in the order directing the recruit to report to this office the proper designation of "full signal-service" or "field signal-service," as the case may be.

VIII. Applicants will be presented for the "full signal-service" who, in the judgment of the observer-sergeant, are fitted by education and intelligence for the full duties of the signal-service, including not only field-signals and telegraphy, but also the observation and report of storms, by telegraph and signal, and display of cautionary signals, for the benefit of commerce and agriculture, under the joint resolution of Congress approved February 9, 1870, the acts of Congress approved June 10, 1872, and March 3, 1873, and the authorization of the Secretary of War, and for such other duties as may be required in connection therewith. Only such will be selected as upon examination by the sergeant are able to read and write the English language, have some knowledge of arithmetic, and have sufficient intelligence to be capable in time of performing any of the duties required in the signal-service. The same proficiency required in the examination for assistants to observers will not, however, be insisted upon, as there will be opportunities for future improvement through study and the use of text-books which are provided at Fort Whipple, Va., to which post all the recruits will at first be ordered.

IX. Applicants who, in the judgment of the observer-sergeant, are not fitted by education and intelligence for the full duties of the signal-service, but who are of such ability and character as to render them qualified for the field duties of the signal-service, *i. e.*, those including field-signals and electric-telegraph, as distinguished from those including the observation and reports of storms, and display of cautionary signals, &c., will be presented to the recruiting officer for enlistment in the "field signal-service." The recruits so enlisted will not be precluded from eventual advancement to the full duties of the signal-service and promotion, in case they prove fit and worthy, but will not be considered as included, upon their enlistment, in the regulations in reference to examination, instruction, and other special provisions made for those recruits who may have been enlisted with special reference to the "full duties of the signal-service," *i. e.*, those embracing the observation and report of storms and display of cautionary signals.

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They may, however, be subject to detail in any of the duties of the signal-service, in the discretion of proper authority.

X. A report of enlistments will be mailed to this office every Saturday, showing the enlistments made during the week, giving name of recruit, date of enlistment, name and rank of recruiting officer, "Enlisted for full signal-service," or, "Enlisted for field signal-service," as the case may be, and other particulars suggested by the form furnished, or which may be necessary for full information on the subject. In case a recruit shall have fair skill as a printer, carpenter, or blacksmith, (the enlistment of such men to be encouraged,) the fact will be noted opposite his name, in addition to the designation of "full" or "field" service. If no enlistment shall be made, or no applications received, the fact will be stated.

XI. Special attention will be directed to prevent any misunderstanding or complaint of misrepresentation regarding the requirements and duties of the signal-service and the terms of enlistment. The circulars from this office, Nos. 17 and 18, dated respectively June 7 and July 1, 1873, are designed to give full information on these subjects, and both of them will be in all cases exhibited to applicants for enlistment, the observer-sergeant truthfully explaining any portion which may not be understood, but not deviating from its terms. Circular No. 17 is explanatory of the "field" and No. 18 of the "full" service, and, after it shall be decided for which of these classes the applicant proposes to enlist and will be presented by the sergeant, the form at the end of the appropriate circular will be properly filled up, signed by the applicant, and witnessed by a disinterested person before the applicant shall be presented to the recruiting officer, and, if the enlistment shall be perfected, the circular so signed will be forwarded to this office with the next weekly report of enlistments. When more copies of the circular above mentioned or of the report of enlistments are needed, requisition will be made for them in the usual manner.

XII. Posters directing application to the observer-sergeant at each recruiting station will be furnished, which he will cause to be posted in proper places and in sufficient numbers, replacing those destroyed or obliterated, the expense of posting which will be paid from this office on his forwarding bills in the usual manner. Publication in newspapers at the station of a notice similar to the posters would prove of much greater value, but this office is not authorized to pay for advertisements. It is supposed, however, that out of interest in the service and in return for information given gratuitously to the press, some newspapers will, when requested by the observer, publish a proper notice, which will be procured, if possible, under a distinct understanding that it cannot be paid for.

XIII. A copy of these instructions, and also one of circulars Nos. 17 and 18, before referred to, as well as of any future instructions or circulars which may be issued on the subject, will be presented by the sergeant to the recruiting officer at the station, in order that he may fully understand the directions given by this office in reference to the execution of the instructions of the War Department, which, it is supposed, have been communicated to that officer by the superintendent of the general recruiting service.

PROPERTY.

145. Blank forms, entitled "Report of signal-service property," will be furnished each observer for making out a quarterly report of the property at his station, which report will be rendered at the expiration of the quarters ending, respectively, March 31, June 30, September 30, and December 31, of each year.

This report will be filled out in the following manner: All property received from this office, and purchased at the station by proper authority from this office, will be entered on the line containing the words "Total during quarter."

On the line headed "Issued and expended during the quarter" will be entered in the proper columns the total expenditures of forms, stationery, &c., consumed in performing the regular duties of the station during the quarter, with such articles as may have been returned to this office. These will be deducted from the amounts in the line beginning "Total during quarter," and the remainders brought down and entered on the line "Total on hand to be accounted for," which completes the *first* report from any station.

Each quarterly report will be made in duplicate, one copy to be transmitted to this office within ten days after the expiration of the quarter, and the other retained by the observer making it out, to enable him to bring forward for next report the "Total on hand to be accounted for," which will be entered in the next report as "On hand from last report."

No article will be entered in this report that is not invoiced from this office.

Every article taken up on this report must be entered under its proper heading, as the misplacement of a single figure may occasion serious difficulty. Before the report is sent in the two copies should be carefully compared, in order that they may be made to correspond exactly with each other.

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146. Bills for all properly authorized improvements, repairs, or necessary work at the various stations of observation, *must* be forwarded so as to reach this office as near the first day of the month succeeding that in which the work was done as is practicable.

147. It is required that bills for rents of offices, gas consumed, &c., be rendered monthly, and in every case where it is possible the observer is directed to procure such bills and forward them promptly on or before the expiration of each month.

148. Whenever any article of office furniture, fuel, or supplies of any description whatever are purchased by an observer, under authority from this office, it will be entered on a copy of Form 6, as "received by purchase," with the name of the party furnishing it, properly dated and signed, and, accompanied by the memorandum bill of the same, will be forwarded to this office, by mail, *on the day* on which the purchase may be made.

149. All vouchers must contain the autograph signature of the party or firm in whose name they are made, and must in no instance be signed by a clerk or others for them, except where necessity occasions the signing of a voucher by an attorney or agent, in which case that agent's power of attorney must accompany the voucher so signed.

150. When an observer is relieved from the charge of a station he will turn over, on proper invoices, to his successor all property and stores for which he is officially responsible, and will take duplicate receipts therefor, one copy of which he will retain, and forward the other to this office with a final report, on the regular form, of the property for which he was accountable, at the date of his relief, made out in precisely the same manner as the regular quarterly report.

One copy of the invoice of property so transferred will be forwarded to this office by the observer taking charge.

151. When public property is receipted for by an observer he will make a careful examination of it, and forward a written report of the result of such examination to this office.

152. Observer-sergeants, or other enlisted men of the signal-service, receipting for Government property, at a signal station or elsewhere, will be held personally responsible for such property; and to guard themselves against pecuniary loss will assure themselves by personal inspection that every article of property receipted for is actually at the station, and in the condition specified in the receipt.

153. Whenever any article of office-furniture, stationery, &c., is purchased by an observer, under proper authority from this office, it will be entered in a copy of Form 6 as "Received by purchase," with the name of the party furnishing it, and a memorandum-bill of the price paid or to be paid, and forwarded to this office, properly dated and signed, by mail on the day of purchase.

154. Authority must be obtained from this office for making all repairs and purchases at stations, except those enumerated in paragraph 119 of these instructions, and all applications for such authority must set forth the necessity for the expenditure, and state the estimated amount.

155. No public property will be used or labor employed by observers for any purpose whatever, without special authority from this office.

156. When any article of public property, not of an expendable nature, for which an observer is responsible, becomes unfit for service, from any cause whatever, he will report the facts in the case to this office, but will not drop such article from his returns until authorized to do so.

157. Observers will endeavor, by timely repairs, to keep all property for which they are responsible in serviceable condition, and necessary funds for this purpose will be provided, upon satisfactory requisition and estimates forwarded to the property and disbursing officer.

158. If any article of public property be lost or damaged, through the neglect or fault of any observer or assistant, the money value thereof will be stopped against his monthly pay.

159. A rigid economy must be practiced by all observers in the expenses of their several stations, and all irregularities and extravagances will be promptly corrected by charging all excesses to the observers at fault.

160. The following articles will be allowed at each station, and may be purchased at the prices named by each observer without other authority:

One room for the performance of his duties will be rented by the month, at each station, but no more than eighteen dollars per month will be paid therefor without special authority from this office; one desk, (price not to exceed $20;) one table, with drawers, (stained pine, and not to exceed $6;) one wash-stand, (at a price not exceeding $2;) four chairs, (not to exceed $2.25 each;) one stove, with pipe, (not to exceed $25;) one coal-scuttle; one fire-shovel; one water-bucket; one cup or dipper; one goblet; one basin; one large lamp; one oil-can; one dust-pan and brush; one broom; two common spittoons; one lantern. The above-named articles must be of a cheap, plain, and substantial kind. Memorandum-bills (unreceipted) for rent, labor, and pur-

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chases will be sent to this office as soon as presented, and will be settled at the earliest opportunity.

161. Upon the shipment of any article of property which may be ordered to be turned in to this office, by express, observers are directed to procure from the express-agent at their stations receipts in duplicate for the package or box, and forward them to this office by mail on the date of shipment.

162. Memorandum-bills for labor and for articles purchased must be sent in separately.

163. Fuel will be purchased for heating office, by each observer, at the current market rates, and bills forwarded to this office for settlement. The cost of carrying coal and other fuel to the observer's office will be included in the price of the fuel, and not charged as a separate item.

164. The pay and allowances of observer-sergeants and enlisted men serving as assistant observers are obtained from three different sources, and will be drawn through the property and disbursing officer of the Signal-Service, United States Army, at the end of each month, on the receipt at this office of the following blanks, signed in duplicate:

1st. Form 5—Pay Department:

(FORM 5.)

The UNITED STATES,

To JOHN THOMPSON, Dr.

	Dollars.	Cents.
For pay from 1st of ——, 187-, to —— of ——, 187-, being —— months, —— days, at —— dollars per month.....		
Amount.....		
Deduct for Army Asylum..... $——		
Due United States for clothing overdrawn..... ——		
Due United States for tobacco..... ——		
Balance.....		

Received of —— ——, Paymaster United States Army, this —— day of ——, 187-, —— 100 dollars, in full of the above account, by check No. ——, on —— United States Treasurer, ——, this date, for $——.

JOHN THOMPSON,
(Signed in duplicate.) *Sergeant Signal-Service, U. S. A.*

This payment accords with the soldier's descriptive list, and is noted thereon.

——, *Paymaster U. S. A.*

2d. Form Y—Commissary Department:

(FORM Y.)

The UNITED STATES,

To JOHN THOMPSON, *Sergeant Signal-Service, U. S. A.*, Dr.

	Dollars.	Cents.
For commutation of rations while on extra duty as ——, at ——, from —— to ——, 187-, inclusive, —— days, at 75 cents per day.....		

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I certify that the above account is correct and just; that the commutation was made by order of the Secretary of War, and was necessary for the public service, there being no opportunity for messing.

———,
———.

Received at ———, this —— day of ———, 187–, from———, C. S. United States Army, the sum of ——— dollars and ——— cents, in full of the above account.

JOHN THOMPSON,
Sergeant Signal-Service, U. S. A.

(Signed in duplicate.)

3d. Signal-Service Receipt-Roll—Quartermaster's Department.

(Voucher to Abstract B.)

(FORM No. 13.)

The UNITED STATES,

To ——— ———, DR.
——— *Signal-Service, U. S. A.*

On extra duty as ———, at ———.

	Dollars.	Cents.
For extra-duty pay from —— to ———, 187–, inclusive, ——— days, at —— per day.		
For commutation of fuel from ——— to ———, 187–, ———, at $—— per month....		
For commutation of quarters from ——— to ———, 187–, ———, at $—— per month.		

I certify that the above account is correct and just; that the services were rendered as stated; that they were necessary for the public service, and are borne on my roll of extra-duty men, (Form 3,) for the month of ———, 187–, and that no fuel and quarters in kind have been furnished.

———, ———,
A. A. Q. M., Signal-Service.

Received at Washington, D. C., the —— day of ———, 187–, of ——— ———, quartermaster, United States Army, the sum of ——— dollars and ——— cents, in full of the above account.

JOHN THOMPSON.

(Signed in duplicate.)

These vouchers will be signed by observers and their assistants, one set by each man, exactly as shown in the above illustration.

165. *No part of the body or receipt of either form will be filled up before transmission*, and they must be forwarded direct to this office at such time as will insure their receipt by the property-officer before the 20th of each month.

166. *Observers will not be allowed to sell or otherwise dispose of any of the above-mentioned accounts, nor will they be permitted to draw upon this office, or any of the officers connected therewith, without special authority.*

167. The following tables show the amount of monthly pay to be received by observers and their assistants, for the different years of service, and the sources from which it is received;

Estimate of monthly pay proper and clothing allowance.

FOR SERGEANTS.

Year of enlistment.	Pay proper.	Stoppages, retained pay, and Soldiers' Home.	Amount paid.	Amount retained each month.		Total amount due each month.
				Clothing allowance.	Retained pay.	
1	$17 00	$0 12	$16 88	$7 60	.....	$24 48
2	17 00	13	16 87	4 66	.....	21 53
3	18 00	1 12	16 88	5 94	$1 00	23 82
4	19 00	2 13	16 87	4 66	2 00	23 53
5	20 00	3 12	16 88	5 08	3 00	24 96

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FOR PRIVATES, FIRST CLASS.

1	$13 00	$0 12	$12 88	$7 38	.....	$20 26
2	13 00	13	12 87	4 54	.....	17 41
3	14 00	1 12	12 88	5 78	$1 00	19 66
4	15 00	2 13	12 87	4 54	2 00	19 41
5	16 00	3 12	12 88	4 87	3 00	20 75

FOR PRIVATES, SECOND CLASS.

1	$13 00	$0 12	$12 88	$7 29	.....	$20 17
2	13 00	13	12 87	4 52	.....	17 39
3	14 00	1 12	12 88	5 75	$1 00	19 63
4	15 00	2 13	12 87	4 52	2 00	19 39
5	16 00	3 12	12 88	4 85	3 00	20 73

The amount retained—$1 each month from pay of third year, $2 from fourth year, and $3 from fifth year—will not be paid until final discharge from the service, and will be forfeited unless the soldier shall have served faithfully to date of discharge.

The pay per month of a soldier re-enlisting after five years' service will be that of the fifth year of his former term, less $1 retained pay. He will also receive $2 per month additional for re-enlistment.

Clothing allowance per month.

Rank.	First year.	Second year.	Third year.	Fourth year.	Fifth year.	Total for five years.
Sergeant	$7 60	$4 66	$5 94	$4 66	$5 08	$335 28
Private, first class	7 38	4 51	5 78	4 54	4 87	325 32
Private, second class	7 29	4 52	5 75	4 52	4 85	323 16

But no clothing allowance will be paid the soldier except on "final statements." When clothing is drawn, if the allowance is exceeded it will be settled by the soldier on the 30th June and 31st December of each year.

Monthly estimate of quartermaster.

No. of days in the month.	Fuel—rate per month.	Quarters—rate.	Extra pay—rates.	Total.
28	$8 00	$10 00	$10 15	$28 15
30	8 00	10 00	10 50	28 50
31	8 00	10 00	10 85	28 85

Assistants are not allowed extra-duty pay.

Monthly estimate of commutation of rations.

No. of days in the month.	Rate per day.	Total.
28	$0 75	$21 00
30	75	22 50
31	75	23 25

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Estimate of monthly pay of sergeants (observers) and privates (assistants).

SERGEANTS—FIRST YEAR.

No. of days in the month.	Pay proper.	Quartermaster's Dept., pay.	Commissary, pay.	Amount of pay received monthly.
28	$17 00	$28 15	$21 00	$66 15
30	17 00	28 50	22 50	68 00
31	17 00	28 85	23 25	69 10

SECOND YEAR.

28	$17 00	$28 15	$21 00	$66 15
30	17 00	28 50	22 50	68 00
31	17 00	28 85	23 25	69 10

THIRD YEAR.

28	$18 00	$28 15	$21 00	$67 15
30	18 00	28 50	22 50	69 00
31	18 00	28 85	23 25	70 10

One dollar per month retained until discharged.

FOURTH YEAR.

28	$19 00	$28 15	$21 00	$68 15
30	19 00	28 50	22 50	70 00
31	19 00	28 85	23 25	71 10

Two dollars per month retained until discharged.

FIFTH YEAR.

28	$20 00	$28 15	$21 00	$69 15
30	20 00	28 50	22 50	71 00
31	20 00	28 85	23 25	72 10

Three dollars per month retained until discharged.

PRIVATES.—FIRST YEAR.

No. of days in the month.	Pay proper.	Quartermaster's Dept., pay.	Commissary, pay.	Amount of pay received monthly.
28	$13 00	$18 00	$21 00	$52 00
30	13 00	18 00	22 50	53 50
31	13 00	18 00	23 25	54 25

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SECOND YEAR.

28	$13 00	$18 00	$21 00	$52 00
30	13 00	18 00	22 50	53 50
31	13 00	18 00	23 25	54 25

THIRD YEAR.

28	$14 00	$18 00	$21 00	$53 00
30	14 00	18 00	22 50	54 50
31	14 00	18 00	23 25	55 25

One dollar per month retained until discharged.

FOURTH YEAR.

28	$15 00	$18 00	$21 00	$54 00
30	15 00	18 00	22 50	55 50
31	15 00	18 00	23 25	56 25

Two dollars per month retained until discharged.

FIFTH YEAR.

28	$16 00	$18 00	$21 00	$55 00
30	16 00	18 00	22 50	56 50
31	16 00	18 00	23 25	57 25

Three dollars per month retained until discharged.

In addition to the above rates of pay, enlisted men will receive the usual allowance for first, second, third, and fourth re-enlistments.

168. All useless and broken instruments will be forwarded to this office and carefully packed.

169. All instruments or public property of any character whatever, returned to this office by observer-sergeants, or other enlisted men of the signal-service, must have a tag or slip of paper securely attached thereto, indicating the station whence it comes, marked—"Returned from ———, under instructions from O. C. S. O., of date ———."

170. Timely requisition will be made upon the property-officer for books of record, stationery, forms, &c., to insure their receipt before the supply on hand is exhausted.

171. Requisitions for forms and stationery will be made quarterly by mail, and will embrace all the different varieties required for use at stations.

172. In consequence of the abolition of the franking privilege the postage on all official matter transmitted through the mails on and after the 1st day of July, 1873, must be prepaid by postage-stamps.

To enable observers to give compliance to this requirement they will be furnished for official use stamps of different denominations. A weekly return of stamps received and expended will be made on the regular blanks and forwarded weekly to this office. These returns must be made promptly at the expiration of each week, showing how many of each denomination of stamps are on hand at the closing of the last mail of the week; a copy of the return to be retained by the observer in each instance. A memorandum-book furnished for this purpose will be kept, in which will be noted each package or letter mailed, stamped with the official stamp, entering therein the addresses and the number and denomination of stamps used on each and every piece of official mail-matter transmitted; this data will be kept up to enable observers to make reports to the central office as to the exact disposition of the stamps, which report is liable to be called for at any moment.

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SPECIAL INSTRUCTIONS.

In case of actual or anticipated neglect or refusal on the part of the employés of any telegraph company by which he is directed to transmit telegraph communications, at the time and in the manner stated in the orders of the Chief Signal-Officer to the observer in charge of a station, then in force, he will proceed as follows:

1. He will prepare every telegraphic communication according to his instructions, and present each, at the time designated, at the proper office of the company for the reception of such communications. He will continue to present all reports, as to the regular tender of which the company has once been advised, until it has been notified by this office that such tender will cease after a certain date, of which notice the observer will be informed.

2. He will, in advance of the presentation of all telegraphic communications, give specific notice to the company, during its usual hours of business, that an official communication of a certain-mentioned character, from the observer, addressed to a certain official person or persons, (the address to be specified,) will, at a certain subsequent hour, (stating what hour,) be presented at the office of the company for telegraphic transmission. This notice will provide for every regular report to be made during the ensuing twenty-four hours, and also will be given in advance of any special communication, when practicable. Such notice will be in writing, addressed to the local manager of the company, and will be delivered, open, to the officer or employé of the company who may be in charge of the local office at the time of delivery. The written notice will be signed in duplicate by the observer, and one copy filed and retained by him. The following general form will be observed:

"SIGNAL-SERVICE, UNITED STATES ARMY,
"*Observer's Office*, ———, ———, 187—.

"To ——— ———,
"*Manager of the Telegraph Company at* ———:

"SIR: As an agent of the War Department for the purpose of taking meteorological observations, in pursuance of the laws of the United States, and of preparing telegraphic communications relating thereto, and of presenting the same for transmission to telegraph companies, I have the honor to give notice hereby that, in accordance with orders received by me to that effect, I will present at the office of the above-mentioned telegraph company at this place, severally, at the times hereinafter mentioned, certain official communications from myself, in my official capacity, and addressed as specified, viz:

"One communication will be presented at —— o'clock — minutes —. m of —— the —— day of ———, 1872, addressed to ——— ———.
"One communication will be presented at —— o'clock — minutes —. m of —— the —— day of ———, 1872, addressed to ——— ———.
"One communication will be presented at —— o'clock — minutes —. m of —— the —— day of ———, 1872, addressed to ——— ———.

"I have the honor to request that the communications above referred to may be received and transmitted telegraphically by the said company to their respective addresses at the times above mentioned, at which they will severally be presented for that purpose.

I am, sir, respectfully yours, &c.,

"———— ————,
"*Observer-Sergeant, Signal-Service, U. S. A.*"

He will also record the time, place, and person, when, where, and to whom he delivered such notice, and reduce to writing any oral reply made or action taken. The record must be dated, timed, and made, plainly written, immediately after the service of the notice.

3. He will present his regular reports for transmission at the times, and as directed in his schedule, at the telegraph-offices, until further orders, whether or not the company has any employés then present whose usual duty it is to receive them. If the office is open for his admission, although closed for the transmission of messages, the communication should be presented to the most responsible person present in the employ of the company, a copy being always retained, and record made as above directed. If the office appears to be closed, he will make himself sure of the fact that it is so.

In writing the message for transmission the observer will not use any form imposing terms or the limitations of a contract, but will write the communications tendered on the form directed by this office.

4. He will keep a written record of the time when, place where, and the name of person employed by the company, to whom each communication was presented. In

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case the office was closed, so that the communication could not be presented to any employé of the company, he will record the time and place with the fact. If any employé of any telegraph company refuses to receive the message presented to him, it will be sufficient to have made the tender, and to preserve such record as will establish the fact that it was made. The records, in all cases, must be dated and timed, and must be made, plainly written, immediately after the tender of the message. It should rehearse all facts which may tend to keep his memory of the transaction complete.

It is desirable, though not essential, that on some of the occasions when the above-mentioned notice is delivered, as well as when the message is tendered, the observer should, if practicable, take with him another person, wholly disinterested, who may serve as an additional witness of the transaction.

Should the officer or employé in charge of the telegraph office inform the observer generally that he will not in future be admitted to the office at all, he will not, on that account, discontinue giving notice or making tenders, but will give and make, or attempt to give and make, them precisely as before.

The construction of the laws defining the relations of telegraph companies to the United States, which is held by this office, is that the companies are bound to give unconditional priority to telegraphic communications between the several departments of the Government of the United States, and between their officers and agents; that after due notice to that effect the companies are required to transmit such communications at any hour when they are tendered for that purpose, and that prepayment is not required from the Government or its agents.

All the telegraph companies by which the messages of the signal-service have hitherto been sent, according to directions given to the observers, have accepted the provisions of the act of Congress approved July 24, 1866, a copy of which, and of other acts bearing upon the subject, is hereto appended.

AN ACT to aid in the construction of telegraph lines, and to secure to the Government the use of the same for postal, military, and other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That any telegraph company now organized, or which may hereafter be organized, under the laws of any State in this Union, shall have the right to construct, maintain, and operate lines of telegraph through and over any portion of the public domain of the United States, over and along any of the military or post roads of the United States which have been or may hereafter be declared such by act of Congress, and over, under, or across the navigable streams or waters of the United States: *Provided*, That such lines of telegraph shall be so constructed and maintained as not to obstruct the navigation of such streams and waters, or interfere with the ordinary travel on such military or post roads. And any of said companies shall have the right to take and use from such public lands the necessary stone, timber, and other materials for its posts, piers, stations, and other needful uses in the construction, maintenance, and operation of said lines of telegraph, and may pre-empt and use such portion of the unoccupied public lands subject to pre-emption, through which its said lines of telegraph may be located, as may be necessary for its stations, not exceeding forty acres for each station; but such stations shall not be within fifteen miles of each other.

SEC. 2. *And be it further enacted*, That telegraphic communications between several departments of the Government of the United States and their officers and agents shall, in their transmission over the lines of any of said companies, have priority over all other business, and shall be sent at rates to be annually fixed by the Postmaster-General.

SEC. 3. *And be it further enacted*, That the rights and privileges hereby granted shall not be transferred by any company acting under this act to any other corporation, association, or person: *Provided, however*, That the United States may at any time after the expiration of five years from the date of the passage of this act, for postal, military, or other purposes, purchase all the telegraph lines, property, and effects of any or all of said companies, at an appraised value, to be ascertained by five competent, disinterested persons, two of whom shall be selected by the Postmaster-General of the United States, two by the company interested, and one by the four so previously selected.

SEC. 4. *And be it further enacted*, That before any telegraph company shall exercise any of the powers or privileges conferred by this act, such company shall file their written acceptance with the Postmaster-General of the restrictions and obligations required by this act.

Approved July 24, 1866.

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[PUBLIC RESOLUTION—No. 9.]

JOINT RESOLUTION to authorize the Secretary of War to provide for taking meteorological observations at the military stations and other points in the interior of the continent, and for giving notice on the northern lakes and seaboard of the approach and force of storms.

Be it resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of War be, and he hereby is, authorized and required to provide for taking meteorological observations at the military stations in the interior of the continent, and at other points in the States and Territories of the United States, and for giving notice on the nothern lakes and on the seacoast, by magnetic telegraph and marine signals, of the approach and force of storms.

Approved February 9, 1870.

[General Orders No. 18.]

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL-OFFICER,
Washington, D. C., July 3, 1872.

The following order of the Secretary of War, having been received by the Chief Signal-Officer of the Army, is published for the information of all concerned:

"WAR DEPARTMENT,
"*Washington City, June 27, 1872.*

"The Chief Signal Officer of the Army is hereby directed and ordered to carry into effect the special duties imposed upon the Secretary of War by the act of Congress approved July 24, 1866, entitled 'An act to aid in the construction of telegraph lines and to secure to the Government the use of the same for postal, military, and other purposes,' and by the public resolution No. 9, approved February 9, 1870, and entitled 'Joint resolution to authorize the Secretary of War to provide for taking meteorological observations at the military stations and other points in the interior of the continent, and for giving notice on the northern lakes and seaboard of the approach and force of storms,' and by the act approved June 10, 1872, entitled 'An act making appropriations for sundry civil expenses of the Government for the fiscal year ending June 30, 1873, and for other purposes;' and the said Chief Signal-Officer of the Army, and all such persons as have been or shall be designated and employed by him for the taking of meteorological observations, or for preparing or presenting telegraphic communications for transmission, or for transmitting the same, are hereby recognized and appointed as agents of the War Department for those purposes, and are hereby authorized and directed by and in behalf of said Department to offer to any telegraph company in the United States for transmission any and all such telegraph communications as they may be required by the Chief Signal-Officer to make, and to request the transmission thereof by such company or companies, at such times, and in such places, as may be directed by said officer.

"WM. W. BELKNAP,
"*Secretary of War.*"

By order of the Chief Signal-Officer of the Army.

GARRICK MALLERY,
Capt. and Bvt. Lieut. Col., U. S. A.,
Acting Signal-Officer and Assistant.

AN ACT making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, eighteen hundred and seventy-three, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following sums be, and the same are hereby, appropriated for the objects hereinafter expressed, for the fiscal year ending June thirtieth, eighteen hundred and seventy-three, viz:

* * * * * * *

UNDER THE WAR DEPARTMENT.

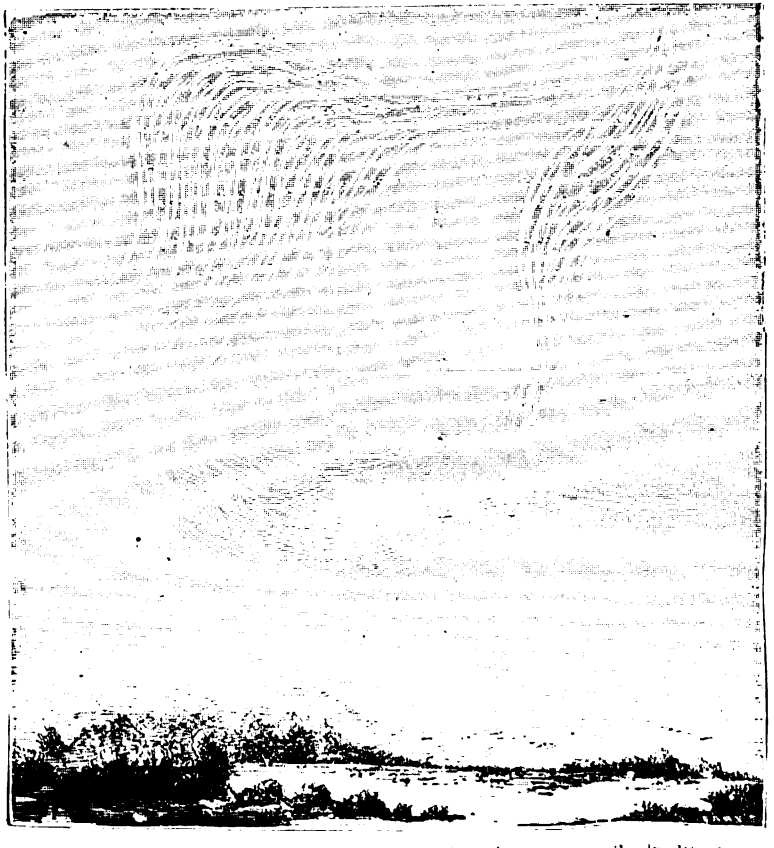
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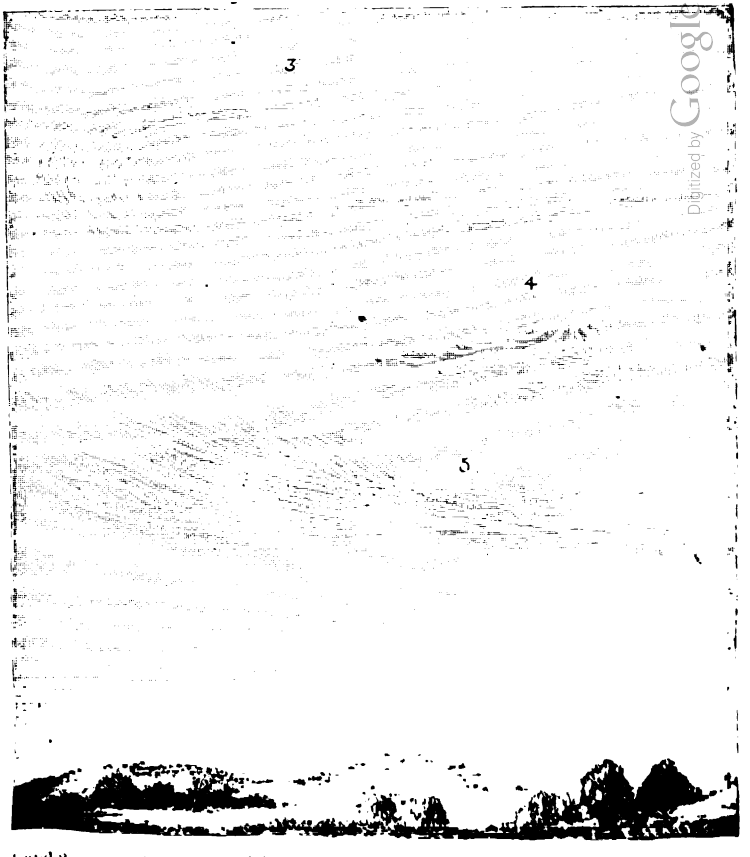
SIGNAL-OFFICE.

For manufacture, purchase, or repair of meteorological and other necessary instruments; for telegraphing reports; for expenses of storm-signals announcing probable approach and force of storms throughout the United States, for the benefit of commerce and agriculture; for instrument-shelters; for hire, furniture, and expenses of offices

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No. I. ILLUSTRATION OF CLOUDS. No. II.

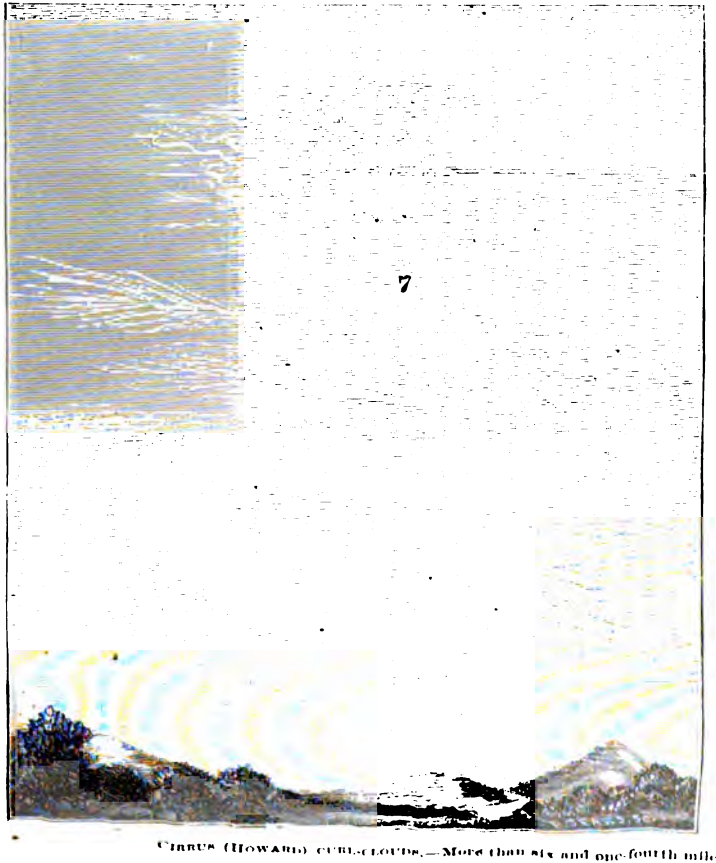




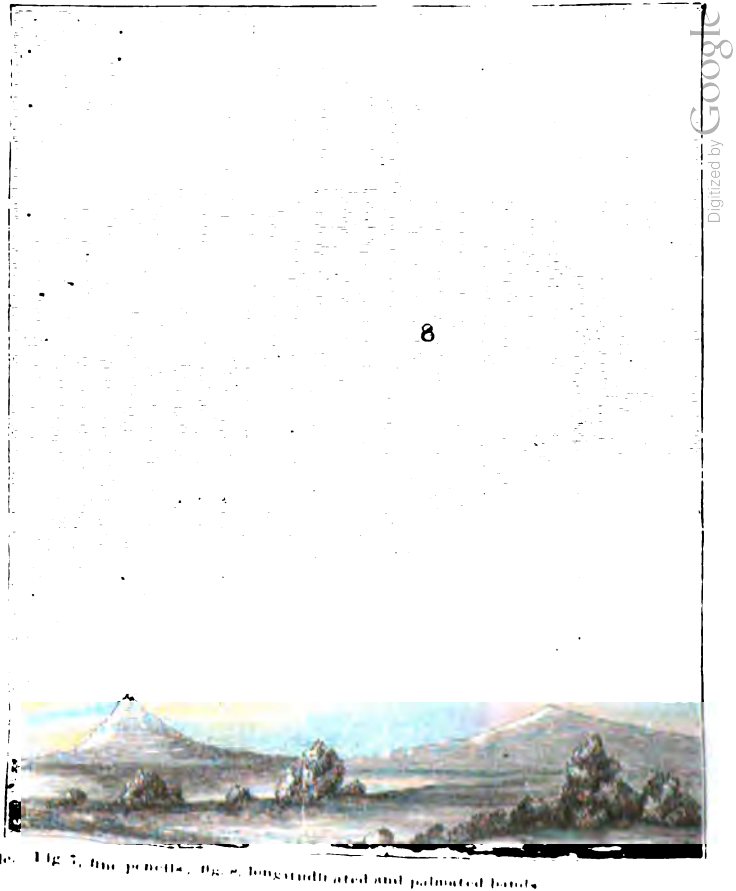
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Cirrus (Howard) cirro-clouds.—More than six and one fourth miles in altitude. Figs 1 and 2, cat's tails. figs. 3 and 4, twisted tufts. &c. , plumes. &c. &c. &c. &c.

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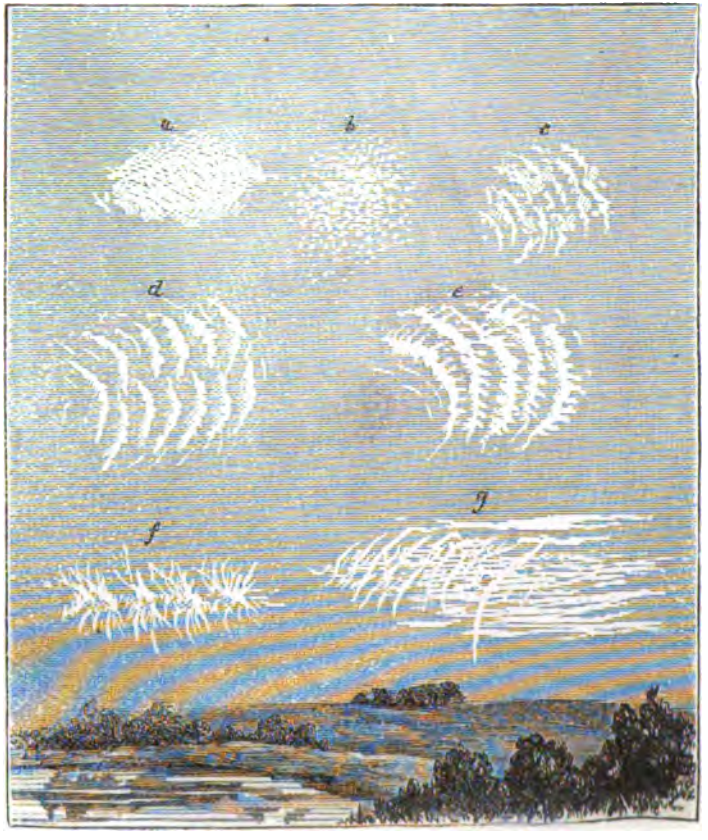
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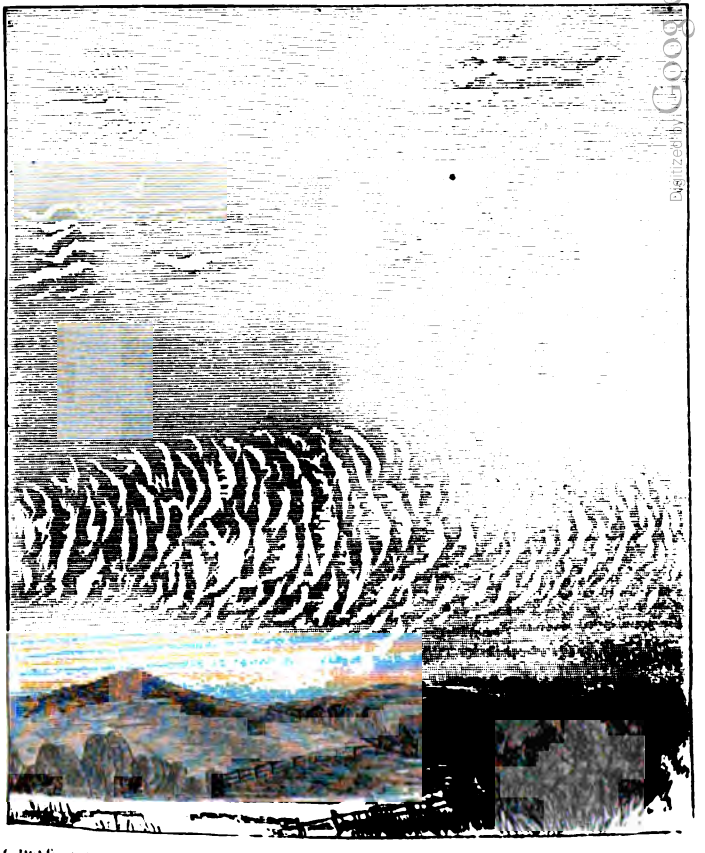
Cirrus (Howard) cumulo-cirrus.—More than six and one-fourth miles in altitude. Fig 7, fine pencilla; fig. 8, longitudinated and palmated bands.

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No. V. ILLUSTRATION OF CLOUDS. No. VI.

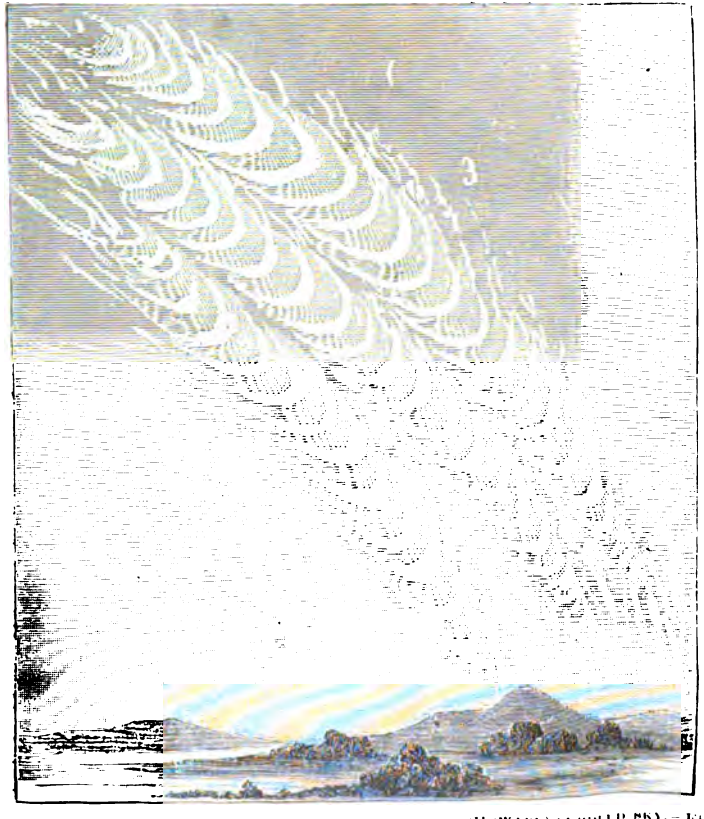


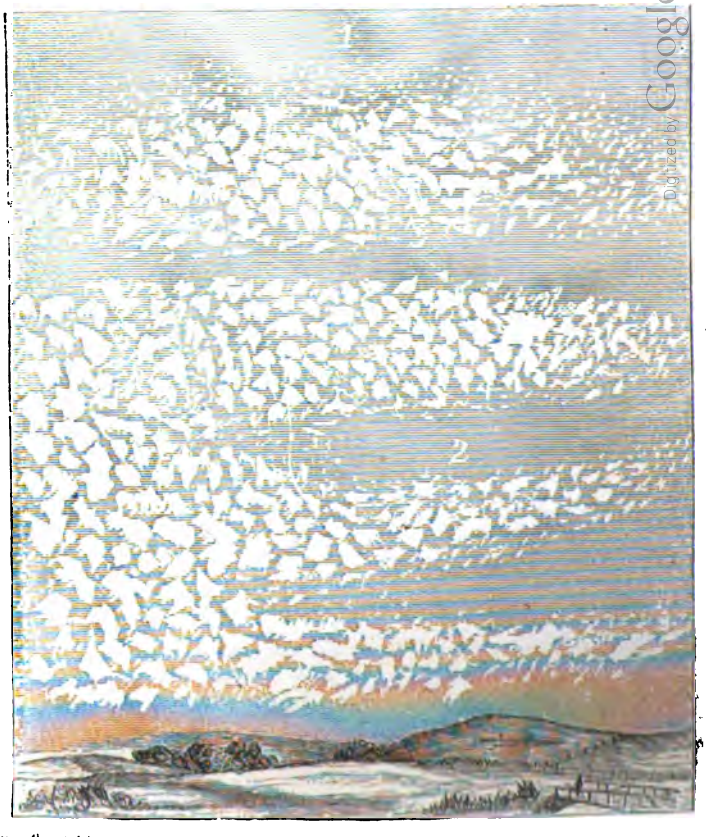


CIRRO-STRATUS (HOWARD) ICE CLOUDS. *a, b, c, d, e*, partial formation; *f*, perfect formation; *a, b, c, d, e, f, g* nascent formation

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No. VII. ILLUSTRATION OF CLOUDS. No. VIII.





CIRRO-CUMULUS (HOWARD) CURDLED SKY.—Fig. 1, perfect Cyrus; fig. 2, bizarre form; fig. 3, irregular form.

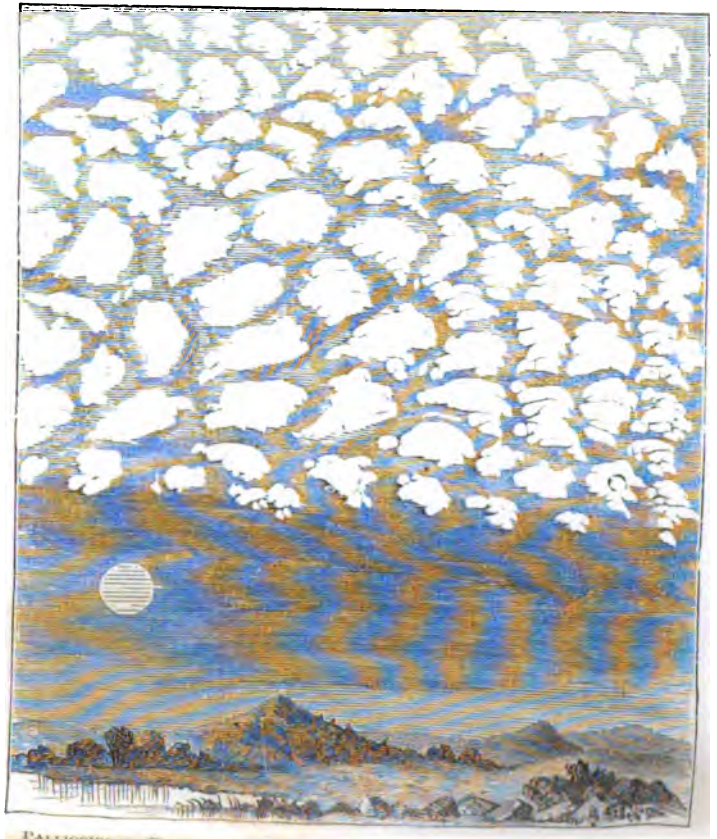
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No. IX.

ILLUSTRATION OF CLOUDS.

No. X.



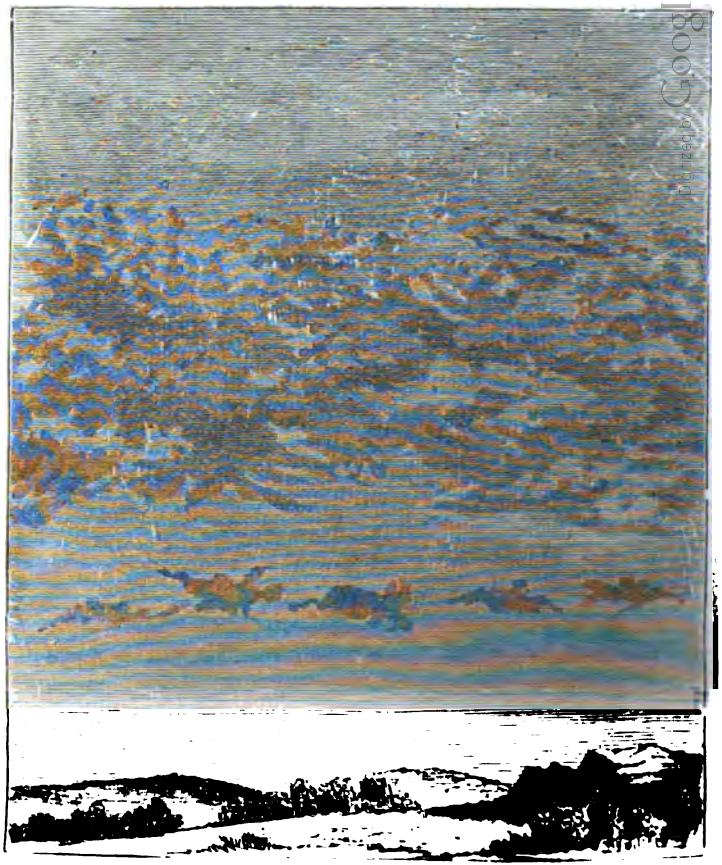


PALLIOCIRRUS (POST) SHEET OR SCUD CLOUD.—*a, b,* gradual formation; *c,* perfect type; *d,* veiled sun.

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No. XI.

ILLUSTRATION OF CLOUDS.

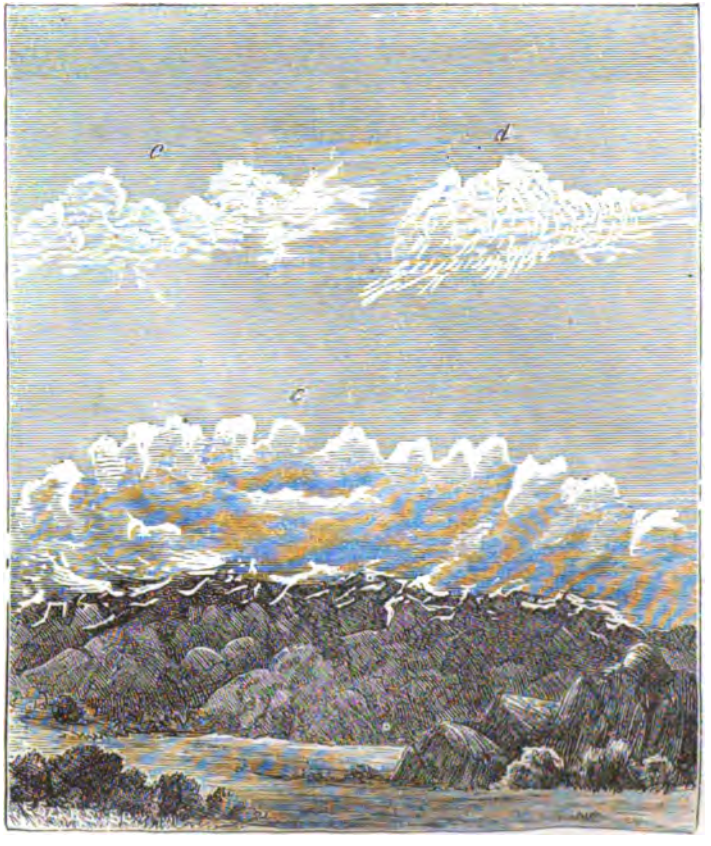


No. XII.



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maintained for public use in cities or posts receiving reports; for maps and bulletins, to be displayed in chambers of commerce and boards-of-trade rooms; for books and stationery; and for incidental expenses not otherwise provided for, two hundred and fifty thousand dollars: *Provided*, That the Secretary of War be, and he hereby is, authorized and required to provide, in the system of observations and reports in charge of the Chief Signal-Officer of the Army, for such stations, reports, and signals as may be found necessary for the benefit of agriculture and commercial interests: *And provided*, That no part of this appropriation, nor of any appropriation for the several Departments of the Government, shall be paid to any telegraphic company which shall neglect or refuse to transmit telegraphic communications between said Departments, their officers, agents, or employés, under the provisions of the second section of chapter two hundred and thirty of the Statutes of the United States for the year eighteen hundred and sixty-six, and at rates of compensation therefor to be established by the Postmaster-General: *Provided, also*, That whenever any telegraph company shall have filed its written acceptance with the Postmaster-General of the restrictions and obligations required by the act approved July twenty-fourth, eighteen hundred and sixty-six, entitled "An act to aid the construction of telegraph lines, and to secure to the Government the use of the same, for postal, military, and other purposes," if such company, its agents, or employés shall hereafter refuse or neglect to transmit any such telegraphic communications as are provided for by the aforesaid act, or by the joint resolution approved the ninth day of February, eighteen hundred and seventy, "To authorize the Secretary of War to provide for taking meteorological observations at the military stations and other points of the interior of the continent, and for giving notice on the northern lakes and seaboard of the approach and force of storms," such telegraphic company shall forfeit and pay to the United States not less than one hundred and not exceeding one thousand dollars for each refusal or neglect aforesaid, to be recovered by an action or actions at law, in any district court of the United States.

Approved June 10, 1872.

NOTE.—In preparing these instructions free use has been made of the Smithsonian "Directions for Meteorological Observers," of those issued by the Surgeon-General of the Army, and of Colonel Williamson's valuable work on the Barometer.

The office is indebted to the courtesy of Professor Henry, the distinguished secretary of the Smithsonian Institution, for permission to use the following illustrations of the Howard classification of clouds, which is the one to be followed by all observers.

PAPER 8.

REGULATIONS AND RULES OF THE OFFICE OF THE CHIEF SIGNAL-OFFICER OF THE ARMY.

[General Orders No. 28.]

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL-OFFICER,
Washington, D. C., September 1, 1873.

The following regulations and rules, relating to the duties of commissioned officers, enlisted men, and civilian employés at this office, are published for their government, and will be strictly observed.

By order of the Chief Signal-Officer of the Army.

GARRICK MALLERY,
Capt. First Infantry, Bvt. Lieut. Col., U. S. A.,
Acting Signal-Officer and Assistant.

GENERAL REGULATIONS.

I.—DIVISION OF DUTIES.

The officers on duty at this office are classified as, 1st, commissioned officers of the Army and acting signal-officers who have been announced in orders as "Assistants to the Chief Signal-Officer;" 2d, other commissioned officers of the Army; and, 3d, civilian assistants. The duties of the office will be divided between them as follows:

1. One assistant to the Chief Signal-Officer will have charge of the orders, records, and general correspondence of the office, critically examining all papers presented to

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him for file, and reporting upon any irregularity. He will also have the superintendence of enlistments, and perform such other duties as may be specially assigned to him.

2. One assistant to the Chief Signal-Officer will have charge, as property and disbursing officer, of all matters pertaining to money and property, (all communications upon which subjects will be referred to him for action,) together with such duties as may be specially assigned to him.

3. One assistant to the Chief Signal-Officer will, as instructor, have charge of all matters pertaining to the instruction of the signal-service of the Army, and, in addition, as "Assistant in charge of stations," will be charged with the general supervision of the observer-sergeants upon stations, and of the receipt, record, and publication of the weather-reports at this office, together with such duties as may be specially assigned to him.

4. The preparation of the current "Synopsis and Probabilities," and of the official publications in relation to practical meteorology, including the "Weekly Weather Chronicle," "Monthly Weather Review," "Daily Bulletin, Synopsis, Probabilities, and Facts," and such other duties as are related thereto, will be divided between several assistants to the Chief Signal-Officer and civilian assistants, in accordance with a roster to be published from time to time providing in advance for the specified period. In the absence of other orders, the assistant, who at any time may be relieved from the preparation of the current Synopsis and Probabilities, will take charge of the preparation of the publications above referred to.

5. One officer will have charge of the instrument-room and the examination, comparison, and repair of instruments therein, together with such duties as may be specially assigned to him. He will submit a written report to the Chief Signal-Officer every ten days on the condition of each instrument, whether its record is satisfactory as a standard; if not, to what extent it has been unreliable in its indications, with, if possible, a statement of the cause and suggestion of the remedy. His duties are more fully specified under a separate section below.

6. Two commissioned officers of the Army and acting signal-officers will be detailed as inspectors of stations. Their duties are fully set forth in a separate section below.

7. The assistants to the Chief Signal-Officer mentioned in paragraphs 1 and 3 of this section will be permanent members of the board convened at this office for the examination of applicants for enlistment and for instruction in the duties of assistant to an observer on station, and also of the board convened for the examination of candidates for promotion to the grade of sergeant, signal-service. Commissioned officers of the Army, other than those last above referred to, will, as occasion requires, be detailed to be additional members of each of these boards.

II.—Rules for duty.

The following rules relating to the duties of persons connected with the office will be observed by them:

1. When any officer or assistant at this office, charged with any regular duty or work, may be relieved therefrom, either permanently or temporarily, he will formally turn over the duty or work to the officer or assistant designated to receive it, and will direct the clerks and enlisted men, who have been serving under his orders, to report for instructions to the officer or assistant who relieves him, whose name will be stated in orders.

2. Every officer and assistant other than those above referred to in section I, "Division of Duties," paragraphs 1, 2, and 3, under the head of "General Regulation" in this order, will, daily at 10 a. m., make to the Chief Signal-Officer a written report of the duty on which he may be on that day engaged, with the number of clerks and enlisted men employed under his direction, for which purpose blank forms will be furnished.

3. Every officer under whose immediate orders enlisted men or civilian employés have been detailed for duty, will, on every Saturday, make to the Chief Signal-Officer a written report, stating the name and rank of all men on duty with him, the date when they entered upon duty at this office, the nature of their respective duties, and the changes by new detail, relief, or other casualty which occurred during the week, together with such remarks as may exhibit the conduct and work of the men reported upon.

4. The attention of all persons on duty at this office is again directed to the order of the Secretary of War, dated War Department, July 19, 1870, as follows:

"All officers and clerks on duty in the bureaus of the War Department are prohibited from exhibiting any table, statement, or paper belonging to the official records, or giving any information, copy, or extract from the same, or giving any information respecting the business of the Department to any person whatever, not on duty in one of the offices of the Department, without in each case the authority, in writing, of the chief of the Bureau concerned. A rigid compliance with this order will be enforced, to prevent improper use of information irregularly obtained."

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5. In case of the absence of commissioned officers or enlisted men on duty at this office, on account of illness, a certificate to that effect from the proper medical officer of the Army in this city must be furnished without delay, by commissioned officers to the Chief Signal-Officer, and by enlisted men to the commissioned officer under whose orders they are immediately serving. A similar certificate from a practicing physician will be furnished by civilian assistants to the Chief Signal-Officer, and by clerks and other civilian employés to the commissioned officer under whose orders they are immediately serving.

III.—Rules concerning office-rooms, etc.

The following rules will be strictly observed in the office-rooms and halls:

1. The duties of this office do not admit of general office-hours being defined, which will, in the several divisions, be such as shall be, from time to time, established by the officer in immediate charge. As concerns the public, the office-hours will be considered as between 9 a. m. and 3 p. m., and persons unconnected with the office will not be admitted to the rooms except during those hours, unless accompanied by an officer. Visitors will not be received in the instrument-room before 12 m., except in cases specially designated.

2. The office-rooms must not be used as visiting-rooms, or for purposes of entertainment. Persons visiting the office are expected to transact their business as promptly and briefly as practicable.

3. The rooms occupied exclusivly by clerks and enlisted men will not be visited by any persons unconnected with the office, except for some urgent necessity and with the special permission of the commissioned officer under whose orders the men in the room to which admission is desired are serving.

4. All employés entering or retiring from the office will do so in a quiet and orderly manner.

5. Conversation upon any other subject than such as relates directly to the business of the office; giving of information, unless called for by the proper authority; writing of private letters and reading of newspapers during hours of duty, are strictly prohibited.

6. All conversation necessary to the proper discharge of the duties of the office will be carried on in a low tone of voice; and all unnecessary noise, either in the rooms or halls of the office, is prohibited.

7. Messengers in passing in and out of the rooms and halls will do so as quietly as possible, and will report their business in each room, at all times, to the clerk or non-commissioned officer in charge, or, in his absence, to the enlisted man in temporary charge of the room.

8. No rooms occupied by either commissioned officers, civil employés, or enlisted men will at any time be locked, except the room in the personal charge of the chief clerk in the property-division and the model-room, which two rooms shall be kept locked, when not in use, and the keys placed in charge of the watch-sergeant.

9. The clerk or non-commissioned officer in charge of a room will be held responsible for a strict observance of the above rules by all employés under his charge, and any violation of them will be promptly reported by him to the commissioned officer under whose orders the offender may be serving.

IV.—Correspondence and records.

1. All communications in any way relating to, or connnected with, the business of this office, should be addressed to the Chief Signal-Officer of the Army; and any communication in any way relating to such business, received by a military or civilian assistant, or any other person connected with the office, without such address, will be regarded by him as official, and will be handed to the assistant having charge of the records and general correspondence, that it may be properly entered upon the books of the office and receive attention.

2. All papers prepared in the office, or compiled from the data belonging to it, or in the preparation of which its facilities, clerks, books, or records are used, are the property of the United States, are subject to the direction of the Chief Signal-Officer, and will be made of record by presentation to the assistant in charge of records, except in cases where the Chief Signal-Officer may specially direct their submission in the first instance to himself. All such papers will be kept in the office and accessible to proper authority, in case they may be needed in the absence of any officer or assistant.

3. All communications from this office, in any manner relating to or connected with its business, will either be written in the name of the Chief Signal-Officer, and be signed by him, or will set forth in terms that they are written by his direction, and will in that case be signed by the officer having general instructions in relation to them, or

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written special instructions in the particular case. No such communication will, in any case, be written without the direction or approval of the Chief Signal-Officer previously obtained; nor will any such be sent or mailed from the office until it shall have been duly entered and copied on the office-books, for which purpose it will be presented to the assistant having charge of the records and correspondence.

4. The official title of the civilian assistants in the signal-service is "Assistant in the office of the Chief Signal-Officer," or abbreviated, "Assistant O. C. S. O.," which title, in case of signature, will be written after the name, and will be appended to all official papers. All papers so officially signed will be handed to the assistant in charge of records, except when the Chief Signal-Officer may specially direct that they shall be submitted to himself in person.

5. All papers or writings in any way relating to the duties with which the office is charged, or to the subject of, or theories concerning, meteorology having relation to those duties, prepared by any person in any way employed in this office, in any manner proposed for publication or likely to be published, must be formally submitted to the Chief Signal-Officer, for such disposition as he may direct.

The mode of publication of any deductions or theories or papers of any description, to have in any way or by any construction the sanction of the office, has already been determined upon, and the annoyances to arise through deviation from the plan contemplated cannot be permitted.

6. The writing-paper of this office, having an official heading, stamped or printed, will not be used for communications of a private or personal nature, and when such official heading is used, whether stamped, printed, or written, the communication will be considered as official, and be subject to the provisions of the above paragraphs.

7. Neither the official envelopes of the office, nor the official postal stamps furnished to it, will in any case be used to cover any but strictly official communications, written and disposed of in accordance with this order.

8. Requests for the use of any filed paper will be made to the assistant in charge of records, who will provide checks for its return to file. He will furnish any additional information or explanation applied for, on the subject of this section, and will be responsible for the observance of its provisions.

9. The correspondence and official papers connected with the duties of property and disbursing officer, and those connected with the general supervision of the observer-sergeants upon stations, and of the receipt, record, and publication of the daily weather-reports at this office, are not included in the provisions of the above paragraphs 1, 2, and 3 of this section, and the officers designated by paragraphs 2 and 3 of section I, "Division of Duties," under the head of "General Regulations" in this order, will be responsible therefor, in the same manner as has hitherto been the usage of the office.

10. The following table exhibits the papers, reports, &c. connected with this section to be submitted by the Chief Signal-Officer of the Army to the honorable Secretary of War, and to the Adjutant-General, War Department:



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Papers, reports, &c., to be submitted by the Chief Signal Officer of the Army to the Hon. Secretary of War and to the Adjutant General, War Department.

	Nature of documents.	By what authority called for.	When to be submitted.	To whom to be submitted.	Remarks.
1	Annual report of the Chief Signal-Officer of the Army.	Act approved June 25, 1864. Statutes at Large, vol. 13, p. 184.	October 20 in each year	Adjutant-General .	This report should be submitted in duplicate, one for the Secretary of War and one for the Congressional Printer.
2	Statement of employés, (officers, assistants, clerks, &c.,) showing their pay and emoluments per annum, birth-place, where employed, and from what State or Territory appointed.	Acts approved April 27, 1816, July 14, 1832, and March 3, 1851. (Statutes at Large, vol. 3, p. 342, vol. 4, p. 608, and vol. 9, p. 600.)	As soon after the 30th of September as possible biannually.	Secretary of War..	These data are called for by the Secretary of the Interior through the Secretary of War for the Biennial Register.
3	Return of the acting signal-corps, United States Army.	By note on form for this purpose furnished by the Adjutant-General to department and corps commanders.	On the last day of each month, or as soon after as possible.	Adjutant-General .	
4	Post return of Fort Whipple, Va.....	.....do	.....do	.....do	
6	Recruiting return	.....do	.....do	.....do	
6	Descriptive list of deserters.....	.....do	.....do	.....do	
7	Muster-roll of enlisted men on duty at office of the Chief Signal-Officer.	.....do	.....do	.....do	Also duplicates furnished to the paymaster who settles the accounts.
8	Muster-roll of the enlisted men of the signal-service, United States Army.	.....do	On the last days of February, April, June, August, October, and December, or as soon thereafter as practicable.	.....do	Do.

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V.—General correspondence and record-rooms.

These rooms are in immediate charge of one chief clerk, with general supervision.

The enlisted men employed and the special duties assigned to each are as follows:

One sergeant, whose duty it is keep a correct record of all "letters sent" to general correspondents, and, in the absence of the chief clerk, to assume charge of the rooms.

One enlisted man who keeps a record of all "letters sent" to observer-sergeants in charge of stations and "letters received" from telegraph companies; one in charge of "letters received" from general correspondents; one in charge of "letters received" from observer-sergeants and from those corresponding in the interests of agriculture: one in charge of correspondence (letters "sent" and "received") with the post at Fort Whipple, Va., and general correspondence relating to the enlisted men of the service: one in charge of an order-book, in which is recorded all orders, general and special, issued by direction of the Chief Signal-Officer; one in charge of the reports mentioned in Section IV under this head, the charge of descriptive book of enlisted men, muster-rolls, recruiting-returns, enlistment and other papers relating directly to the enlisted men of the signal-service, and two to whom is assigned the miscellaneous work of the rooms.

RULES FOR THE DIVISION IN CHARGE OF THE PROPERTY AND DISBURSING OFFICER.

1. Upon the clerk in charge of the property-division devolves the duty, under the direction of the property-officer, of the immediate supervision and examination of all bills against the central office and the various stations of observation, the preparation of such bills for vouchers and money-accounts of the office and the correspondence pertaining thereto, and the prompt rendition of all reports and papers which this branch is called upon to make at the time designated for such reports, and for the proper record and care of all papers sent to him for action or file.

He is to hold, under the authority of the property-officer, the sergeant appointed for the purpose responsible for the proper discipline of the men and the neatness of the rooms and desks occupied by them, and the strict performance of all the duties required therein, conformably to the rules and regulations displayed in said rooms.

A daily record of the time of arrival and departure of each man is to be kept and rendered on Saturday of each week to the property-officer, accounting strictly for all tardiness or omissions to report during the period for which the roster is made.

2. All letters, communications, vouchers, and other papers or indorsements received at, sent from, or forwarded through, this office for official action relating to the money or property in charge of this office will be placed on record in the office-books, and the action upon them carefully noted.

To insure the prompt and accurate performance of the work, it is assigned in portions, under the immediate direction of the clerk in charge, substantially as follows:

One man has the care of the writing and recording the miscellaneous letters sent, in which are kept copies of all letters emanating from this division; one man is in charge of the "letters-received book," containing a synopsis of all letters received: one man has the keeping of the "returns of signal-property" from the military posts throughout the country, the examination of those returns and the entry in a distinct set of letter-books of all correspondence upon the subject of property-returns, both sent and received; one man is in charge of the property-account with the observers, whose duty it is to keep a record of all property sent from the office against the party to whom it is sent, invoicing the property to the observers in charge of the stations, and the examination and correction of the reports of property, which are required to be sent in promptly at the expiration of each quarter by them; one man has the preparation of all vouchers for abstracts, of making up the abstracts and accounts-current and the property returns, with an assistant to assist in comparing them, as made up, before they are transmitted to the accounting officers of the Treasury Department: one man is employed in preparing names and subject-indexes for the "letters sent" and "received" books; one man has the copying of all the money-papers of the disbursing-officer in the office-books, in which are kept a verbatim copy of each voucher, abstract, and account-current, and any paper accompanying the same.

One sergeant, with a corps of assistants, has charge of the preparation of vouchers for settlement of all accounts against the office, and is responsible for the proper keeping of all records of disbursements of money on vouchers, together with the settlement of the pay and commutations of the men serving on stations and in this office.

The receiving, unpacking, packing, and shipping of goods is in charge of a sergeant, with a number of assistants, whose duty it is to designate what portion of the work is to be done by each, and to see that it is properly performed.

The duty of preparing matter for the mails is assigned to one man, who is appointed under special orders of this office, whose duty it is to take charge of, and account to

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the property and disbursing officer for, the postage-stamps and stamped envelopes which may be placed in his hands for that purpose.

To economize time and labor a letter-balance is placed in each important room; so that, when a letter is sealed or a package made up, the party making it up may immediately weigh it and mark in pencil upon it the weight thereof. At 1, 2, and 3 p. m. each day these packages will be sent to the stamping-clerk, who will then only have to affix the appropriate stamps according to the weight.

It is positively directed that no official stamp shall be used for private mail-matter.

The machine-shop is in charge of a private with assistants. The man in charge is held accountable for the care and proper keeping of all machines, tools, &c.

The library is in charge of one man as librarian, who is required to keep record of the books coming in and taken out; is accountable for their proper distribution in the cases, and the keeping up of the library catalogue. Any person taking a book from the library will leave with the librarian his name and the title of the book taken. No book so taken will be loaned to any person not connected with this office.

3. Employés will be at their desks at 9 o'clock a. m., and will confine themselves to their respective duties until 3 p. m., except 15 minutes between 12 and 1 o'clock, which will be allowed for lunch.

The keys of all desks will be deposited at the close of each day with the clerk in charge of the room or in a place known to him.

All desks must be equipped with a sufficient supply of stationery, so as to obviate all necessity for one man calling on another for it.

A rigid enforcement of the foregoing will be exacted, and all deviations reported to the property and disbursing officer.

4. No enlisted man of the signal-service will be allowed to sell or otherwise dispose of any portion of his pay accounts, (vouchers for pay and commutation,) nor will he be permitted to draw, (or give orders,) upon this office, or any of the offices connected therewith, without special authority.

5. The following reports from this division are submitted by the Chief Signal-Officer of the Army to the honorable the Secretary of War at the dates and under the authorities set opposite each:

Nature of documents.	By what authority called for.	When to be submitted.
1. A statement of contracts entered into during the year previous.	Act approved April 21, 1808, (Statutes at Large, vol. 2, p. 485.)	Early in January of each year.
2. A statement showing military appropriations, with the expenditure and balance unexpended at the end of the year; with an estimate of probable demands on such balance.	Act approved May 1, 1820, (Statutes at Large, vol. 3, p. 567.)	Early in February of each year.
3. A statement of all moneys expended by War Department disbursing officers during the year.	Act approved August 26, 1842, (Statutes at Large, vol. 5, p. 527.)	In January of each year.
4. The name of clerks and all persons employed, salaries, &c., during the year or any part thereof.	Act approved August 26, 1842, (Statutes at Large, vol. 5, p. 525.)	In January.
5. An inventory of property belonging to the United States in the public buildings and grounds occupied in the District of Columbia.	Act approved July 15, 1870, (Statutes at Large, vol. 16, p. 364.)	December 1,

6. The property and disbursing officer is required to make the following returns of property and money to the officers named, periodically as below:

Nature of account.	To whom made.	Period.
Returns of signal equipments and stores	Chief Signal-Officer	Quarterly.
Returns of equipments and stores belonging to Observation and reports of storms," &c.	do	Do.
Returns of quartermaster's stores	Quartermaster-General	Do.
Returns of clothing, camp and garrison equipage	do	Do.
Returns of ordnance	Chief of Ordnance	Do.
Returns of medical stores	Surgeon-General	January & July.
Abstract current, abstract A, purchases, abstract B, expenditures, vouchers to abstracts A and B.	Third Auditor	Monthly.

7. The several varieties of the weather-maps will be sold at the following prices:

Maps in one color, without reports or isobaric lines, 1½ cents each.

Maps in two colors, without reports or isobaric lines, 2 cents each.

Maps on manifold paper, without reports or lines, in books of 100 each, $2.75 per book.

Maps in one color, with current reports, and isobars, 2 cents each.

Maps in two colors, with current reports, isobaric and isothermal lines, 3 cents each.

Postage on each map one cent additional, except the manifold ones, on which it will be 25 cents per hundred.

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The publications other than maps will be supplied until further notice upon the receipt of the amount of postage on each, as follows:

Annual report	24 cents.
Circular on the Practical Use of Meteorological Reports and Weather-Maps	10 cents.
Monthly Weather Review	1 cent.
Weekly Chronicle	1 cent.

All remittances, in payment of subscriptions to, or for the purchase of, maps, or in payment of postage on maps or other publications of the office, made by draft or post-office money-order, must be made payable to the property and disbursing officer of the office.

8. *Quarterly allowance of stationery, forms, &c., for each station.*

1 daily journal.	100 record-sheets for self-registering instrument.
1 daily record of observation.	
1 record of bulletins.	300 circuit blanks.
1 record of letters sent.	1,000 Forms No. 2.
1 record of letters received.	1,500 Forms No. 3.
3 original records of observations.	50 Forms No. 4.
6 pen-holders.	600 Forms No. 5.
72 pens.	500 Forms No. 7.
6 lead-pencils.	1,000 Forms No. 8—"maps."
2 India rubber, pieces of.	1,000 Forms No. 15.
1 red tape, spool of.	25 Forms No. 19.
1 sponge, piece of.	25 Forms No. 20.
1 red ink, bottle of.	10 Forms No. 21.
1 black ink, bottle of.	25 Forms No. 22 A.
1 mucilage, bottle of.	25 Forms No. 22 B.
1 sealing-wax, stick of.	25 Forms No. 23.
3 letter-paper, quires of.	25 Forms No. 24.
1 note-paper, quire of.	25 Forms No. 25.
2 cap-paper, quires of.	100 Forms No. 26.
1 envelope-paper, quire of.	25 Forms No. 28.
200 envelopes, official.	30 Forms No. 30.
50 envelopes, small.	50 Forms No. 31.
50 carbon-paper, sheets of.	25 Forms B.
2 blotting-paper, sheets of.	25 Forms A.

List of stationery, forms, &c., sent to a station when established.

1 Guyot's Meteorological Tables, copy.	1 black ink, bottle of.
1 Loomis on Meteorology, copy.	2 red tape, spools of.
1 Smithsonian Directions for Meteorological Observations, copy.	1 sealing-wax, stick of.
	1 sponge-cup.
1 Manual of Signals, copy.	1 sponge, piece of.
1 Sailor's Horn Book, copy.	10 letter-paper, quires of.
1 Manual of Military Telegraphy, copy.	6 note-paper, quires of.
1 Record of Signals, copy.	10 cap-paper, quires of.
1 Annual Report C. S. O., copy.	1 envelope-paper, quire of.
1 postage mem. book.	300 envelopes, official.
1 cipher book.	150 envelopes, small.
2 cipher cards, sets of.	40 carbon-paper, sheets of.
1 daily journal.	3 blotting-paper, sheets of.
1 daily record of observations.	100 record-sheets for self-registering instrument.
1 record of bulletins.	
1 record of letters sent.	12 meteorological charts, Forms 16.
1 record of letters received.	600 Forms No. 2.
3 original records of observations.	1,000 Forms No. 3.
1 instructions to observer-sergeants.	100 Forms No. 4.
1 inkstand.	800 Forms No. 5.
6 pen-holders.	500 Forms No. 7.
72 pens.	1,000 Forms No. 15.
6 lead-pencils.	20 Forms No. 19.
1 ruler.	10 Forms No. 21.
1 eraser.	20 Forms No. 22 A.
1 paper-folder.	20 Forms No. 22 B.
1 mucilage, bottle of.	20 Forms No. 23.
2 India rubber, pieces of.	20 Forms No. 24.
1 calendar.	50 Forms No. 25.
1 pen-rack.	30 Forms A.
2 red ink, bottles of.	60 Forms B.

The above amounts vary with the size of stations—the average being taken.

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RULES FOR THE DIVISION OF THE RECEIPT, RECORD, AND PUBLICATION OF WEATHER-REPORTS.

I.—OBSERVER'S ROOM.

DAY-OBSERVERS.

Office-hours from 8.15 *a. m. to* 3 *p. m.*

1. The observer in charge of station will have immediate supervision of the examination and filing of mail reports from the several signal-stations, of the correspondence with these stations on matters of routine duty, and of all observers and assistants on station duty in this office. He will be held responsible for the proper discipline of the men, and the cleanliness of the several rooms used for station purposes, and for the proper performance of all duty done therein. He will keep a daily record of the time of arrival and departure of each man under his charge, and on Saturday of each week render a return of the same to the officer in charge of stations, accounting properly for all delays or failures to report during the week. He will report on Form 24 the number of maps, weather and post-office bulletins issued each week, classifying them according to time of issue, and see that the entries in the daily record are promptly and properly made. He will make out the monthly meteorological chart and the monthly means on Form 22. He will be responsible for the proper and punctual mailing of all matter ordered to be sent by mail from the station-room, and will attend to the shipment of all anemometers and self-registering attachments issued to the several stations, and to such other duties of a general nature as may be assigned to him from time to time. To secure the prompt performance of office-work, it will be distributed under his direction substantially as follows: One man in charge of correspondence and general clerical work; one man in charge of the special-bulletin book, in which all reports are copied from the Forms 4 received by mail from the several stations of observation. This man must be an instructed observer, and he will also make and record all the regular observations taken between the hours of 8 a. m. and 3 p. m. One man for general duty, such as briefing, indexing, and filing station reports, copying records, &c. One man charged with the duty of changing the large weather-map in hall of office, filing and distributing printed weather-maps in the office, and enveloping those sent out by mail.

1. A correct list will be kept by the observer of all persons and institutions supplied with maps, bulletins, Monthly Weather Reviews, and Weekly Weather Chronicles as mailed therefrom, with the local address of each. He will also keep a complete list of offices furnished with the printed Synopsis and Probabilities, with the names of the several distributing centers from which they are supplied.

3. In addition to the regular-station records, the following will be kept in suitable form for convenient reference:

All extracts from logs of vessels received, with name of each vessel and party from whom received.

Cautionary-signal record, as specially reported by the observers.

Location of the signal-office at each station, with position and elevation of the several instruments.

Bench-marks at the various river-stations, with changes in same when made at any time.

All marine records received, with name of vessel and party from whom received.

All casual reports and meteorological memoranda received from voluntary correspondents and sent to the observer's room for file.

Time of receiving post-office bulletins at the various offices.

The daily journal will be carefully and fully kept up.

4. All work must be promptly done and not be allowed to accumulate from day to day; all station-reports will be carefully examined and compared, and when errors are found, the observer at fault will be notified immediately, in order that the proper correction may be made as soon as possible.

5. On the first day of each month the observer in charge will examine the check-book of reports, and call upon all delinquents for such as have not been received at that date, if sufficient time has elapsed for their receipt by mail.

6. Smoking will not be allowed in any of the office-rooms.

7. The records in charge of the observer will not be taken out of the room in which they are habitually kept, without the authority of the Chief Signal-Officer.

8. The regular-bulletin book for each month, when filled, will be deposited in the office library for safe-keeping and convenience of access.

9. On the first of January, April, July, and October, respectively, of each year, the file copies of the printed weather-map will be counted out in quarterly volumes by the observer, and turned over to the property-officer for binding.

10. One observer sergeant and two assistants will be charged with the translation

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and record of the morning telegraphic reports. The observer will translate the reports as rapidly as they are received from the telegraph-room; one assistant will enter the reports, as translated on Form 3, making the required number of manifold copies, and will fill up the columns of barometric and thermometric changes during such intervals as occur in the receipt of reports. The second assistant will write three copies of the translated reports on manifold paper for distribution as follows: One for use of the officer making out the Probabilities; one for use of assistant in changing the large weather-map in hall of building; and one for use in printing-office, and such additional copies as may be ordered from time to time. These translations will be distributed promptly by the messenger charged with their delivery, and each sheet must show the time of the first and last entries upon it. If there should be any delay in the receipt of reports when a sheet is partly filled, it will not be held for completion, but will be torn out at once and sent to the parties for whom it is prepared, in order that their work may not be delayed by any fault in this office.

11. Back reports will not be entered in Form 3, but will be translated as received, and manifold copies made and distributed in the same manner as current ones. They will be copied into the bulletin-book in *red* ink under the proper date.

12. The observer in charge of the translation of reports will be responsible for their prompt and correct entry in the bulletin-book, and will see that such entry is made before the expiration of the regular office-hours each day.

13. The morning bulletins will be torn out at 10.30 a, m.. or upon notification from the telegraph-room that the circuits are closed, except on Sundays, when the time may be extended, in case of necessity, to 11 a. m. At ten minutes before 10 o'clock each day, one copy of the bulletin, as written up to that time, will be torn out and sent promptly by messenger to the printing-room. If the reports are not all entered by this time, another copy will be sent to the printer as soon as they are received, and the bulletin completed. One copy of the complete bulletin will also be posted in the hall of the office, and all those for local distribution by messenger will be sent to the officer in charge of stations. Those for foreign correspondents will be kept with the afternoon and midnight bulletins, and mailed in packages semi-monthly to the proper address. Those for distribution by mail in this country will be properly addressed and mailed with the regular office-mail daily.

14. The observer in charge will make out a list of telegraphic errors at each report, and send it to the officer in charge of stations, with the copies of the bulletin intended for his use.

NIGHT-OBSERVERS.—FIRST RELIEF.

15. The observer in charge of this relief, with one assistant, will report promptly each day at 4 p. m. and remain until 12 p. m., or until relieved by the sergeant in charge of the second relief.

16. The assistant charged with the special duty of writing the manifold copies for use of the Probability and printing rooms will report at 5 p. m., and remain until the Synopsis and Probabilities are ready for issue when he will distribute the copies among the Associated Press agents authorized to receive them. He will return to the office at 11.15 p. m., and remain until the midnight Probabilities are ready for issue, when he will distribute copies of the same as follows: One copy to Daily Chronicle, one to National Republican, one to New York Associated Press, and one to the American Press Association, and such other places as may be designated from time to time.

17. The time of receiving the midnight copy for distribution will be noted on the proper form, and also the time of its delivery to the press agent. The utmost dispatch must be used by the assistant in performing this part of his duty.

18. The observer will be responsible for all observations made during his tour of duty, for the discipline of all enlisted men and all messengers then on duty in the buildings, except those in the telegraph-room, and, in his capacity as watch-sergeant, for the safety of the buildings and the public property therein. He will translate the afternoon reports as received, and his assistant will write the bulletins as the reports are translated, making the changes in the barometer and thermometer at such times during the work as there may be delay in the receipt of reports. The bulletin-book will be properly and promptly filled under the supervision of the observer, and all back reports entered in red ink under their proper dates. River-reports will be entered and the changes recorded in the special-bulletin book provided for this purpose. The manifold copy of reports for the officer in charge of the Probabilities will be sent to his room as fast as each sheet is translated, and if any delay occurs in receiving the reports, all on hand at the time of such delay will be sent down without waiting for enough to fill the sheet.

19. The large weather-map for displaying the afternoon reports will be changed regularly by 7.45 p. m., and the same care taken of the symbols and tags as prescribed for those used on the other two maps. One copy of the bulletin will be posted in the office-hall as soon as completed, and one copy for the officer in charge of stations, and one for the printing-room, placed in their proper envelopes, and retained for delivery

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the next morning with the midnight bulletins. All other copies will be left on the desk of the observer in charge of the station for proper distribution next day.

20. All nine o'clock reports received by telegraph will be entered in the bulletin-book provided for that purpose, and a copy of them sent to the Probability-room.

21. All time not required for the performance of regular station-duties will be occupied in addressing envelopes from lists furnished by the sergeant in charge of station, and especial care must be taken to write the addresses plainly and distinctly.

22. All reports received before midnight will be translated, distributed, and recorded promptly.

23. The observer in charge will keep a record of the time at which each man reports for duty, and will turn over this record on Saturday of each week to the sergeant in charge of station.

24. Smoking will not be allowed in the office during the hours of duty.

NIGHT-OBSERVERS.—SECOND RELIEF.

25. The observer and assistant on this relief will be on duty from midnight until 8 a. m., or until relieved by the arrival of the watch-sergeant in charge of the day tour of duty, or by proper authority. The observer will take charge of the translation of reports promptly on time, and will be held responsible for their prompt delivery in the Probability-room in the manner already prescribed for the afternoon report. He will translate the reports as received from the telegraph-room, while one assistant enters them on the bulletin, and the other makes the manifold copies for the Probability-room.

26. After the reports are all received and translated they will be entered in the bulletin-book, all back dates being entered in red ink in their proper places.

27. One copy of the bulletin will be posted on the bulletin-board in the office-hall, and one for the officer in charge of station and one for the printing-room will be put in the same envelopes with the copies of the afternoon bulletins remaining, and placed, with the other copies made, upon the desk of the sergeant in charge of station, or in such other place as he may designate.

28. The large weather-map of the midnight reports in the office-hall will be promptly and properly changed, and the same care taken with symbols and tags as prescribed for the other two maps.

29. During the receipt of the midnight reports, the manifold copy for the Probability-room will not be delayed at any time over one minute.

30. In addition to the work of translating and recording reports, the observer will see that the envelopes used in distributing the post-office copies of the printed Synopses and Probabilities are plainly addressed, and that the inclosures are folded and sent to the post-office in time for the earliest morning mail that leaves the city. He will also assist the printer in reading the proof of the Synopses and Probabilities whenever notified that it is ready. The assistant who carries them to the post-office may then be excused from duty for the remainder of the night, except on Saturday nights, when the post-office bulletins not being printed he will remain during the full hours of duty. The observer in charge of its relief will be held responsible as watch-sergeant for the safe-keeping of the buildings and property connected with the office, and for the discipline of the enlisted men on duty with him or in the buildings at the hours when he is in charge. He will be governed, in case of fire, and in reference to the supervision of the watchman, by the general instructions that follow.

31. Smoking will not be allowed in the office-room during the hours of duty.

GENERAL INSTRUCTIONS.

32. Each observer in charge of a relief will assure himself by personal inspection, when going on duty, that the fire-extinguishers, fire-buckets, and axes are in their proper places, and ready for immediate use. He will see that all the men on duty during his tour are carefully instructed how to act in case of fire, and will, in the event of such an occurrence, immediately send a messenger to notify the nearest officer connected with the office of the fact. If the fire, when discovered, is of such extent that it cannot be extinguished by the means available in the office, the alarm will be turned on from the box (No. 68) attached to the building, and every possible precaution taken to subdue the flames before the arrival of the engines. If the fire should get so far under headway that the destruction of the building is to be feared, prompt measures will be taken to remove to some place of security as much public property as possible, but especially the office-records and meteorological data. To enable this to be done intelligently, and without loss of time, the observers in charge of both night-reliefs will inform themselves as to the location of these records and documents in order that access may be had to them in case of necessity with the least possible delay. A duplicate key to the fire-alarm box will be intrusted to the night-watchman who goes on duty at 6 p. m. daily, and will be transferred by him to his successor at midnight. The key to the

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watch-clock will be given to the watchman once every hour, to enable him to make his regular round of duty, and will be reclaimed from him after each round. If the watchman fails to apply for the watch-key fifteen minutes before any hour during his tour of duty, the observer will ascertain at once the cause of delay, and take proper measures to prevent its repetition.

33. The duplicate key to the fire-alarm box and the key to the watch-clock will be left each morning on the desk of the officer in charge of stations.

34. In changing the large weather-maps, two sets of tags will be provided, to be used alternately. When one set is taken off, the pencil-marks upon the several tags will be removed with a moistened sponge, the tags dried and kept for use the next day. Care must be taken to write the reports accurately upon the tags, to put the proper weather-symbols at the various stations, and to change the date of report by means of the calendar over each map.

35. A record of telegraphic errors noted in translating will be kept by each observer in charge, and inclosed with the bulletin for the officer in charge of stations, to whom report will also be made of all errors or omissions on the part of any of the men on duty with him.

II.—TELEGRAPH-ROOM.

1. The telegraph-room will be under the immediate supervision of the electrician of the signal-office, who will be held responsible for the discipline of the operators and clerks therein; for the proper discharge of their duties, and for the proper record and care of all papers and reports sent to him for action.

2. Office-hours are from 7.45 a. m. to 1.30 a. m., or until the midnight report is disposed of, and the caution—"good-night"—sent.

3. The electrician will so arrange his working force that at least one operator will be present for duty at all times during office-hours, as given in the preceding paragraph.

4. He will divide the working hours into reliefs of as nearly equal length as possible, and have the operators alternate weekly in the day and night reliefs and the receipt of signals or weather-reports.

5. He will receive from the property and disbursing officer all telegraph-bills sent to this office for settlement, and after carefully and promptly auditing the same will return them with suitable remarks to that officer.

6. The general duties of the operators will be substantially as follows:

a. Receive and transmit all weather-reports and messages, including the Synopses and Probabilities sent to or from the office.

b. Enter all reports received on the regular check-sheets, and all telegrams sent and received in the books of "telegrams sent" and "telegrams received," respectively.

c. Keep wire record during receipt of reports, and also record of special weather-service.

d. Enter all check-sheets, special weather-records, and cautionary-signal orders in the books provided for these respective records.

e. File wire reports.

f. Prepare list of stations from which reports are missing at close of circuit.

7. The general duties of the clerks will be as follows:

a. Examine the mail copies of Form 5, and compare them with the telegraph copies, noting all errors, and reporting the same to the electrician.

b. Keep a record of the receipt of all mail copies of Forms 2, 5, 19, and "B," and call on the proper observers for any missing copies, using the regular letter form for this purpose, and submitting it for signature and entry to the officer in charge of stations.

c. Examine and file Forms "B" and 19, noting all errors, and reporting them to the electrician for the proper action.

d. Examine and compare statements of circuit-work performed by the several telegraph companies for the office, and report all discrepancies or errors to the electrician.

e. Keep record in proper books of all irregularities discovered.

f. File all reports in their proper places in such a manner that any one of them can be easily and quickly found.

8. Cautionary-signal orders, Synopses and Probabilities, and telegraphic orders to observers in reference to station duties will be signed by the officer in charge of stations. Other telegrams will be sent in the regular business manner.

9. The manifold copy of reports received will be sent promptly to the translating-room, and if there should be any delay in necessary reports after a sheet has been commenced, the operator will not wait to get the sheet full, but will send to the translator all on hand when the delay occurs.

10. Copies in manifold of all reports received between the regular reporting-hours will be sent to the translating and probability rooms, and to the officer charged with the preparation of the Weekly Weather Chronicle, &c.

11. When the regular circuit between New York and Chicago is broken, or communication so interrupted as to delay the transmission of reports between those points, the observer at Chicago will be directed to send them *via* Cincinnati if the delay occurs at

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either the morning or afternoon report. If at the midnight report, the observer in Cincinnati will be directed to forward them to this office with his regular reports.

12. In the event of serious delay in the receipt of reports from New York over the regular circuit, the observer there will be directed to forward them by any other available route.

13. Operators in the regular New York circuit will be instructed at any time to divide the circuit whenever such a course would facilitate the transmission of the reports, and at such points as may be thought advisable by the electrician in this office.

14. The electrician will notify the proper officials of the several telegraph companies of all delinquencies on the part of their employés in connection with the transmission of signal business, keeping full copies of all letters sent in the book provided for that purpose.

15. All errors noted in observers' reports will be brought promptly to the attention of the officer in charge of stations for proper action.

16. Smoking will not be allowed in the telegraph-room.

17. Visitors will not be allowed in the room without permission from one of the commissioned officers on duty in the office, or from the electrician.

18. Enlisted men and clerks on duty in this office will not be permitted to enter the telegraph-room, except in the discharge of their duties, without proper authority, and will in all cases transact their business promptly and quietly, and leave the room without disturbing the operators more than is absolutely necessary.

III.—Lithographic-rooms.

Office-hours from 8.30 *a. m. to* 3 *p. m.*

1. The rooms will be under the immediate supervision of a sergeant, who will be held responsible for the discipline of the enlisted men employed therein, for the prompt and regular performance of their duties, for the police of the rooms, and for the proper care of the public property required in the discharge of his duties.

2. The sergeant in charge will keep a roster of all men on duty in the lithographic-room, and will note, daily, the time of arrival of each man, reporting the same weekly to the officer in charge of stations, with such remarks as may be necessay to account for neglect of duty or absence during office-hours. In case of sickness, the certificate of one of the surgeons on duty at the United States dispensary in this city must be procured and filed with this weekly report.

3. All transfers will be made by the sergeant in charge, or under his personal direction, and the original from which the transfers are made will be carefully preserved and filed away for convenient reference. He will also attend in person to drawing transfers, pulling proofs and dampening paper, and will make a check daily, showing the number of maps printed of each issue, with time of receipt of copy and of delivery to printers. This check will be delivered to the officer in charge each afternoon.

4. The large press will be used exclusively for printing the isobars and isotherms, and worked by two men, who will not be called upon to perform any other duty. The maps as struck off will be turned over to the printing-room on application.

5. One press will be set apart for making transfers and doing such small jobs as may be required from time to time. One will be used for the file copies of maps printed in two colors, and the other for printing the green maps for regular issue, of which each man will be required to print an average of three hundred copies daily.

6. The first duty of the men on reporting in the morning will be to scrape the rollers, clean the ink-slabs, and remove the resin from the transfers preparatory to printing the plain maps.

7. After the required daily number of maps has been printed, the men will again clean the ink-slabs, varnish the rollers, clean the presses, knives, and other implements used about the presses, besides rubbing out and strengthening transfers, leaving everything connected with their work in a clean and orderly condition. In addition to this, each man must, in turn, sand, polish, and deliver to the transferrer all stones that are injured under his hands.

When it becomes necessary to use one of the regular printing-presses for making transfers, the man in charge of the press will, during the time of its use for this purpose, occupy himself in sanding and polishing as many of the stones as practicable.

8. The transfers of all isobars and isotherms for the current issues of maps must be made with the least practicable delay, all other work giving way to this. The copies as struck off will be delivered promptly to the printing department for completion.

9. All errors noted in the originals furnished for copy will be promptly referred to the officer in charge of stations.

10. Care will be taken to make the lines and lettering on the maps of uniform size, from day to day, and to avoid blotting or otherwise soiling the paper.

11. All requisitions for paper, ink, and other material must be made in time to prevent the supply on hand from becoming exhausted, and will be made through the of-

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ficer in charge of stations, when he is present. In his absence, such requisition will be made directly to the property and disbursing officer.

12. On Saturday of each week all maps on hand not required for use in this office will be turned over to the property-officer, with a check stating the number of same and date of delivery.

13. The proof of each transfer must be carefully compared with the original before any copies are printed for issue, and all errors found therein promptly corrected.

14. All orders for work in the lithographic-rooms will be given through the officer in charge.

15. Rooms and presses must be kept clean and in orderly condition, and all work promptly done.

16. No smoking will be allowed in the rooms during office-hours.

17. Enlisted men on duty in other parts of the office will not be permitted to enter the lithographic-rooms without proper authority.

IV.—PRINTING-ROOM.

DAY-WORK.

Office-hours 8.30 a. m. to 3 p. m.

1. The sergeant in charge will be held immediately responsible for the discipline of the men employed in the printing-room, for the prompt and accurate performance of their duties, for the police of the room, and the care of all public property therein. He will distribute the work among the men in such manner as will best secure its performance, and will see that all proofs are carefully compared with the originals and errors corrected before any copies are struck off for issue.

2. As a general rule the different men will be kept at that part of the work with which they are most familiar; but care must be taken that all are sufficiently instructed in the several duties of the room to be able to take hold of any one of them in the absence of the man specially charged with such duty.

3. Regular copy will be delivered to the sergeant in charge at about the following-named hours daily:

Bulletins for afternoon and midnight maps of day previous by 8.45 a. m.
First reports for a. m. map at 9.15 a. m.
Changes for a. m. map, 9.45 a. m.
Synopsis for a. m. map, 10.15 a. m.
Probabilities for a. m. map, 10.30 a. m.
Weather Chronicle, 11 a. m.

The copy of the "Facts and Verifications" will be received at irregular hours, being delivered as rapidly as prepared by the proper officer.

4. A list will be kept by the sergeant in charge of the number of copies of the Weather Chronicles and of each issue of the map required daily, and of the number of copies required of all other publications. This list will be printed and posted in the room, near the desk of the sergeant in charge.

5. All proofs of Weather Chronicle, Facts and Weather Review will be marked in pencil with the name of the sergeant in charge, and sent over promptly to the officer in charge of room for proper disposition; when returned the proof will be checked with the name of the officer responsible for its preparation. All other proof will be sent to the same officer, but need not be checked.

6. The morning map will be sent to press in time to have enough copies struck off by 11.30 to supply the Baltimore station, and these maps will be sent without delay to the Baltimore and Ohio Railroad depot in time to leave the city on the noon train.

The other copies for the regular issue will be printed as rapidly as practicable, and those for the office use and local distribution issued as soon as a sufficient number has been printed. Those for mail distribution will be folded in the printing-room by a man charged with that special duty, and properly prepared for the mail.

7. The regular and prompt issue of the tri-daily weather-maps is the principal work of the printing-room, and no other work will be permitted to interfere with or delay it.

8. A record will be kept by the sergeant in charge of the time at which each man reports for duty daily, and of the causes of delay or failure to report. This record will be handed to the officer in charge on Saturday afternoon of each week. In cases of sickness the certificates of the fact from one of the attending physicians at the United States dispensary in this city must be procured and filed with this weekly report.

9. All requisitions for paper, type, ink, and other necessary materials will be made through the officer in charge of room, when present, and, in his absence, to the property-officer in person. These requisitions must be made in time to prevent the supply of any article from becoming exhausted, and delay of work in consequence.

10. Three skeleton copies of each map will be struck off for use of the lithographer

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who prepares the small maps for publication, with the monthly issue of facts. These maps will be filed by the sergeant in charge until called for by the office librarian, to whom they will be transferred on application.

11. A detailed record will be kept by the sergeant in charge, in a book provided for that purpose, of all work done in the room.

12. Smoking will not be allowed in the printing-room during office-hours.

13. On Sunday and official holidays the only work required, except in special cases, will be the issue of the authorized number of maps, as indicated from time to time.

NIGHT-WORK.

14. Office-hours will be from 11 p. m. until the post-office copies of the "Synopsis and Probabilities" are printed, properly enveloped and addressed, and sent to the post-office.

15. The "Synopsis and Probabilities" will be printed on flat letter-paper, and issued every morning, except on Sundays, in time to be sent off by the earliest morning mail leaving the city, as ascertained from the city postmaster.

16. The assistant to the night-observer will assist in putting up the copies for mail, and will carry them to the post-office in accordance with instructions already given.

17. Two copies of the "Synopsis and Probabilities" will be printed and mailed to each post-office on the list furnished for the information of the printer. In addition to the copies for mailing, ten copies will be printed for file, and kept by the sergeant in charge until called for by proper authority, and two copies for the officer in charge, and left on his desk by 9 o'clock each morning.

18. The night-printer will clean up and distribute the type used by him, clean the press, and cut the paper required for his work.

19. If the man charged with this duty should be taken sick during the day, or be unable from any other cause to perform it, he will promptly notify the sergeant in charge of the fact, in order that proper arrangements may be made to have the work done by some other man. If the sergeant in charge should have left the office before the receipt of this information, it will be communicated to the watch-sergeant on duty at the time, who will notify the first man on the list of printers furnished him by the sergeant for this purpose.

RULES FOR THE PREPARATION OF SYNOPSES AND PROBABILITIES.

I.—FOR THE GUIDANCE OF ALL OFFICERS, ASSISTANTS, AND OTHERS CHARGED WITH THE PREPARATION OF SYNOPSES AND PROBABILITIES.

1. The first or opening sentence of the Synopsis must always *employ a verb*, and the verb must be *in the present* or *past tense, e. g.:*

SYNOPSIS.—The barometer *has fallen* (or *is falling*) in the Northwest, &c.

The first or opening sentence of the Probabilities *must always employ a verb*, and this verb must be in one of the *future tenses*, or must distinctly refer to the *future, e. g.:*

PROBABILITIES.—In the Northwest the barometer *will rise*, or *will probably rise*, or *will have risen* by Monday, &c.

2. Attempts to devise new expressions in the weather-bulletin will not be made, and other terms than those heretofore employed to express meteoric conditions will not be used until after submission to the Chief Signal-Officer. The following expressions are approved for the occasion to which they are appropriate, viz: *Partly* (not *partially*) *cloudy* weather; *conditions indicate* (instead of *are favorable for*) *severe local storms: areas of rain* or *rain-areas* or *rain-belts; low barometer* or *storm-center* or *storm-area*; *telegraphic reports*, or *regular* (or *usual*) *morning* (*afternoon* or *midnight*) *telegraphic reports from* ——— *are not yet been received*, (or *are missing.*) "*Cautionary signals are ordered for*, or *continue at*" ——— instead of "Warning signals" or "Signals continue at ———." The expression "dangerous winds are not anticipated," will not be used. In expressing the changes in the direction of wind, the words "*veering*" and "*backing*" will be used whenever possible. The Synopses and Probabilities will be condensed as much as possible; and in order to provide against misconstruction of sentences through telegraphic errors, &c., in the Synopses, the sentences will be made to end with the name of a district or districts, when possible; but in the Probabilities, the sentences will be commenced with the words "for," "in," or "from," followed by the name of district, *e. g.:*

Synopsis for past twenty-four hours.

The barometer has risen over New England and the Middle States. It has fallen somewhat over the Gulf States and the Northwest. Partly cloudy weather and rain-areas have prevailed over South and Middle Atlantic States, with light to fresh easterly to southerly winds, which continue over former. Clear weather and light winds now

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prevail over New England, northern portion of Middle States, and from central Gulf to Lakes Erie and Michigan and Eastern Iowa. Telegraphic reports are missing from stations in Texas, Upper Michigan, Minnesota, and west of Omaha.

Probabilities for coming twenty-four hours.

In New England and the northern portion of the Middle States clear weather and light to fresh winds will prevail. From New Jersey and Eastern Pennsylvania to Florida partly cloudy weather, rain-areas, and light to fresh northerly to easterly winds. From Tennessee to Lakes Erie and Michigan clear and partly cloudy weather. For the Northwest pressures diminish somewhat, with easterly to southerly winds.

3. Special attention will be given in preparing Probabilities to those divisions of the country in which post-office bulletins are distributed, giving as minutely as possible the meteoric changes to be expected within the specified time.

4. Predictions for more than twenty-four hours in the future are only to be made in cases of special importance.

5. In the morning (10 a. m.) Probabilities, special attention should be given to the ensuing twelve hours, and not to the weather of the following day.

6. In the afternoon Probabilities special attention should be given to the Southern States, and other districts where the midnight press report is not published.

7. The individual States, Territories, and lakes, &c., may be mentioned by name in the Synopses and Probabilities when the weather reports justify such minuteness, otherwise the more general geographical divisions of the country are to be mentioned; and in doing this the following terms only are allowed, with the significance given them on the map of geographical divisions, *i. e.*:

Divisions.

1. Pacific States.
2. Extreme Northwest.
3. Northwest.
4. Southwest.
5. Southern States.
6. Lake region.
7. Middle States.
8. New England States.
9. St. Lawrence Valley.

Subdivisions.

1. Missouri Valley.
2. Upper Mississippi Valley.
3. Lower Mississippi Valley.
4. Ohio Valley.
5. Western Gulf.
6. Eastern Gulf.
7. Upper Lakes.
8. Lower Lakes.
9. South Atlantic.
10. Middle Atlantic.

8. For each section mentioned in the Probabilities there will be given, if possible, the expected condition of the pressure, temperature, wind and weather.

9. When the readings of barometers are known to be constantly too high or too low, (from erroneous elevations, &c.,) the assistants making the Probabilities will agree upon the differences to be applied to them, so that the curves may appear to have been drawn by the same person.

10. In making up the Synopses special attention will be given to the *divisions* of territory, and care taken to give the *direction* in which the disturbances named are moving.

11. They will prepare, daily, a statement of those portions of the Probabilities worked up the previous day, verified, those partly verified, those non-verified, and those considered doubtful. In case they have been fully verified, it will only be necessary to state "Fully verified."

12. They will also enter on the schedule of "Cautionary Signals" the letter V, for signals verified at the station; *j*, for signals justified by reports from neighboring stations; *i*, for signals not justified.

II.—FOR THE GUIDANCE OF THE OFFICER, ASSISTANT, OR OTHER PERSON CHARGED WITH THE PREPARATION OF THE SYNOPSES AND PROBABILITIES FOR PUBLICATION.

1. He will be at the office by 9.30 a. m. and 6.30 and 11.20 p. m. of each day. On the maps used for preparing the press-reports for public issue, the observations received before the completion of the Probabilities will be entered with a *black* pencil; those received afterward with a *blue* one. He will examine the reports carefully, with a view to discover telegraphic errors, make a note of all, and call upon the telegrapher for corrections, when these are necessary, and they can be received. The telegrapher on

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duty will be instructed by the officer in charge of stations to call for such corrections promptly, whenever they can be made in time to be of immediate use in the preparation of the Probabilities.

2. In order that he may be responsible for the isobars and isotherms on the maps issued from this office, he is strictly required to draw upon the maps used in preparing the Synopses and Probabilities his own isobars and isotherms in full lines of different colors, (blue and red,) except when there is any doubt, when they will be broken lines, thus: — — — —, and in doing so, to space the distance between the stations as accurately as possible. This duty must not be delegated. He will not carry the isobars and isotherms westward of the one-hundredth meridian.

3. The river-reports will be entered on the special form for that purpose, and the changes will be briefly noticed in the Synopses and Probabilities. Whenever the changes are greater than five (5) inches, he must state—"The rivers have risen (or fallen) at"—[here give the names of the stations,] or decidedly risen (or fallen) at ——; or give the number of feet when the change is remarkable. It is in the view of the Chief Signal-Officer, that the Probabilities issued from this office shall eventually comprise statements as to the probable condition of rivers, based upon the facts which will be given in the Synopsis.

4. He will add daily to the file copy of the 1 a. m. Probabilities only, "*Special for Washington, D. C.*, —— ——," and on Sundays also to the copies sent to the Washington, D. C., newspapers.

5. He will read and verify or correct the manifold copy of the Synopses and Probabilities, and attach his initials to the same, after such verification and correction.

6. The full Synopsis and Probabilities for the 7.35 (11) a. m. report will be sent to the officer in charge of the printers as soon as completed, and not later than 10.30 a. m. A single copy of the Synopsis alone will be sent to the same officer by 10.10 a. m.

7. He will call upon the officer in charge of stations for intermediate observations to be taken by the observers and forwarded to this office whenever necessary.

8. He will be held responsible for the true tracing, upon separate maps with black pencil, of the isobars and isotherms from which the lithographers make copies, and after having completed them, will write the letter *I* in blue color on the lower right-hand corner of the original maps, and attach his initials to the tracings.

9. The tracings from the original maps of the 7.35 a. m. and 4.35 p. m. and 11 p. m. reports will be made, whenever practicable, immediately after the completion of the Probabilities deduced from the reports.

Those for the morning report will be sent to the officer in charge of the lithographic-room by 10.45 a. m. daily. Those for the other two reports will be handed to the watch-sergeant on duty, who will send them to the lithographic-room by 8.30 a. m. of the succeeding day. The only exception to this rule will be made when, through failure of telegraphic communication, a sufficient number of reports are not received to make reliable isobars and isotherms, in which case the tracings of the afternoon and midnight maps may be delayed until the map for the next morning is completed.

10. On a list of the names of stations those from which reports have been received in time for use in preparing the Probabilities will be ruled out by the clerk as he enters the reports on the maps. These lists will be verified by the officer in charge of the Probabilities, and he will attach his initials thereto after such verification, and send the same to the officer in charge of the printers immediately after the tracings of the isobars for the respective maps.

11. After having written the total and partial verifications and non-verifications, and those which are doubtful, for Probabilities, he will write the letter *V* in blue on the press-report and lower right-hand corner of the map from which, together with the preceding maps, the current report was worked up.

12. Two files of the press-reports will be kept; with one the *total* verifications, partial verifications and non-verifications, and the doubtful portions; with the other, only the partial verifications and non-verifications, and the doubtful portions. The former file to be sent every morning at 11 a. m. to the private office of the Chief Signal-Officer; the latter to the officer, assistant, or other person in charge of the preparation of the Facts.

13. Cautionary signals will be ordered to be displayed at a signal-station whenever the officer in charge on the subject considers it probable that there will be experienced within twelve hours at that station, or within one hundred miles thereof, and on any navigable stream, a wind dangerous to navigation.

By dangerous winds on the navigable water will be understood those reaching a velocity of twenty-five miles an hour, as registered by the anemometer on the land, provided that the temperature be decidedly above freezing. For temperatures decidedly below freezing and for foggy weather, winds will be considered dangerous when the velocities are registered as low as twenty miles. The direction of the wind will not be taken into consideration for the present.

If at the regular tri-daily report next following the ordering up of the signals it appears that the danger is not so imminent as was apprehended, the signal will be ordered down. The signal will not be displayed for an indefinitely long space of time.

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The immediate area referred to by the respective cautionary signals will be as defined on the map of cautionary-signal stations at this office, which may be generally described as a circle with a radius of one hundred miles, the station being the center.

14. Should it be found necessary to issue signal-orders, after having written the number, day, date, time, and names of the stations for "Up signals" or "Down signals" on the proper form, he will read the *number, day, date, time, "up"* or *"down,"* and *names of stations* to his clerk, the latter copying the same in the "signal-order book;" the former checking the names successively with a cross (×) above each on the original form as he reads them.

In order to verify the above, the clerk will read the *number, day, date, time, "Up signals"* or *"Down signals"* and *names of stations* from the original form, checking the names successively with a dash (—) beneath each, while the assistant, taking the "Signal-order book," will check the names successively with a cross (×) as the former reads them when verified, and will sign his name. The original form will then be sent to the telegraph-room, and the changes will also be indicated on the "Cautionary-Signal Stations" board.

15. At midnight, after completing the "press-report" and issuing the necessary signal-orders, if any, the "good-night" will be filled up, copied in the "Signal-order book," verified, and then sent to the telegraph-room.

16. On the last day of each month a list of the stations at which corrections are applied to the readings of the barometers, due to erroneous elevations, &c., with the corrections applied to same for the month, will be made up, and a copy furnished to the Chief Signal-Officer or the officer in temporary charge during his absence.

17. Whenever the conditions may be such as to indicate unusually dangerous weather on the Lower Lakes or in the Dominion of Canada, including New Brunswick, &c., he will transmit messages to Professor Kingston, observatory, Toronto, Canada, on the usual form, in the following cipher. The following words will be used for districts:

Collingwood	(for Georgian Bay.)
Saugeen	(for Lake Huron.)
Kingston	(for East Ontario.)
Toronto	(for West Ontario.)
Stanley	(for Lake Erie.)
Montreal	
Quebec	
Farther Point	
Gaspe	
Bathurst	
Shediac	(for north N. B.)
St. John	
Pictou	(for north N. S.)
Halifax	
Sidney	

The cipher words for time and date, in the cipher-book last issued from this office, will be used for the time when a storm may be expected, thus: "Storm (or severe storm) Saugeen, Collingwood, Stanley cash Toronto gaul Kingston neck Montreal Quebec eat," by which it will be understood that storm (or severe storm) is expected to reach Saugeen, Collingwood, and Stanley between 7.35 a. m. and 4.35 p. m., (Washington time,) on the 10th; Toronto, between 4.35 and 11 p. m., on the 10th; Kingston, between 11 p. m. on the 10th and 7.35 a. m. on the 11th; Montreal and Quebec, between 7.35 a. m. and 4.35 p. m. on the 11th. When danger is past, or no longer threatens any Canadian station that has been warned, a dispatch will be sent to Professor Kingston containing the following words:

1. Safety.
2. Name of station or stations.
3. Date and time, (cipher word.)

He will make copies of these messages in the same form for file, reading and verifying or correcting them, as prescribed for the verification of the "signal-orders" issued.

18. At any time when an officer, assistant, or other person at this office charged with the duty of preparing the Synopses and Probabilities for issue to the public, may be relieved from that duty, either temporarily or otherwise by another, the latter will meet the former when he shall be engaged in the preparation of his last bulletin, and fully learn the views which guide him in its preparation.

19. The assistant charged with the preparation of "Facts" for publication will prepare the remarks as to verification of Probabilities to accompany them and also the Weekly Weather Chronicle and the Monthly Weather Review. He will, as part of his regular duties, also study and analyze the river-reports received, and prepare for the Weekly Weather Chronicle a synopsis of the rise and fall of rivers, stating, so far as practicable, the present condition of the several rivers reported upon, and that prob-

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ably to follow the conditions reported. In the Monthly Weather Review he will present a summary of the facts in relation to the different rivers for the month then past.

20. The manuscript copy of the Facts and Verifications will be prepared as rapidly as *the maps* and reports can be examined, and must be furnished for printing, if practicable, within three days of the date to which it refers. The manuscript copy of the Chronicles will be furnished by 11 a. m. daily; that of the Monthly Review not later than the 10th day of the month succeeding that for which it is prepared. All copy and proofs of the same will be sent to the officer in charge of the printing-room, and will be checked with the initials of the assistant responsible for their preparation.

RULES FOR THE GOVERNMENT OF THE INSTRUMENT-ROOMS IN THIS OFFICE.

1. No person unconnected with the office will be admitted to the room before 12 m., or after 3 p. m., unless accompanied by a commissioned officer.

2. The enlisted men on duty in the room will report promptly at 9 o'clock a. m., and will not absent themselves during office-hours without the authority of the officer in charge.

3. Enlisted men and messengers will not visit the room except on duty, and, in so visiting, will refer their business to the officer in charge.

4. The volunteering of information to parties not connected with the signal-service is strictly prohibited.

5. Official communications from enlisted men on duty in this room will be transmitted and forwarded through the regular military channel.

6. In the absence of the officer in charge, the ranking non-commissioned officer on duty in the room will be held responsible for the proper performance of the duties of the attendants, and will require a strict compliance with these rules and regulations.

7. Instruments will not be taken from the room without authority from the officer in charge, or the non-commissioned officer in charge during his absence.

8. No instrument will be issued or allowed to be taken from the buildings connected with the office without a written order signed by the Chief Signal-Officer, or one of the military assistants in this office, which order shall be at once filed in the property division by the officer or non-commissioned officer receiving it.

9. The sergeant in charge of the comparison and examination of instruments will have the immediate care of all meteorological instruments supplied to stations, and will issue and carefully pack them for transportation to stations, subject to the order of the officer in charge of the room. He will unpack and examine all instruments received, and report to the officer in charge their number and condition. He will have charge of the comparison of barometers with the standard, and determine the correction to be applied for instrumental error; of thermometers, hygrometers, maximum thermometers, minimum thermometers, and all other instruments with the several standards. He will have charge of the instrument records, which are as follows:

First. Record of barometer and thermometer cases and boxes issued to observers.

Second. Record of instruments received.

Third. Record of instruments issued and returned from stations.

Fourth. Record of the comparison of instruments—Green's standard barometer, Green's standard maximum and minimum thermometers, and Wild's maximum and minimum thermometers, and Glaisher's standard hygrometers and Edson's hygrodeik.

Fifth. Record of all facts relating to all instruments, and general note-book.

These records will be posted at least once a week. He will keep on his desk a "guide for examining, comparing, testing, and packing meteorological instruments."

10. The sergeant in charge of self-recording instruments and records will have the entire and exclusive management and care, subject to the approval of the officer in charge of the room, of all self-recording instruments, batteries, wires, and instrument records in the room. For general instructions as to the manner of, and time for, changing records, this sergeant will familiarize himself with "Instructions for the management of self-recording meteorological instruments at the office of the Chief Signal-Officer of the Army," and keep a copy of the same on his desk for reference.

11. The records, when taken off the instruments, will be disposed of as follows: Those from Hough's printing-barometer and Beck's aneroid barometer will have the barometric curve traced in ink, and will then be properly filed; those from Hough's meteorograph and barograph will be traced in pencil and filed; those from Beckley's and Draper's rain-gauges will be traced in ink, when rain has fallen, and then filed. The records of the Gibbon self-registering attachment to the anemometer will also be carefully examined, and all letters or lines traced carefully and plainly in ink when the original is faint or uncertain. The above files will be kept in separate drawers provided for their reception in the blank-case marked "K."

12. Extra parts of instruments, such as spindles, screws, &c., will be kept constantly on hand, and their accuracy tested by fitting them to the instruments in use or under examination. The officer in charge will make a special inspection and written report every ten days of the condition of each instrument in all its parts that are liable to wear or friction. In this report the parts of each instrument will be named, with the condition in which each part was found.

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13. The watch-sergeant will report for duty at 8 o'clock a. m., and, in company with the sergeant then on duty, will inspect the instruments, &c., relieve that sergeant from duty, and take charge of the instrument-rooms, and will remain on duty until 4 o'clock p. m. He will observe that the rooms are properly swept, the instruments properly dusted, and the fires attended to. He will make an inspection of the instruments with the sergeant coming on duty at 4 p. m., and will turn over to him the keys of the room and of the fire-alarm.

14. The sergeant of the watch will not leave the building until relieved by his successor, or by proper authority, and will, when relieved, turn over to his successor all keys, records, and instruments received during his tour of duty. Between the hours of 4 p. m. and 8 a. m. he will inspect the instrument-room at least once every hour, and, in case of emergency or special service, will call upon the nearest officer for assistance and instructions.

15. The photographer will be held responsible for the proper care of all photographic instruments and material, and will receive his instructions from the officer in charge of the instrument-room. He will also keep an accurate record of all photographs taken, giving the date and number of each negative, with a proof of the same.

16. The machinist, whose duty it is to keep in repair the meteorological instruments, will report for instructions at 9 a.m., daily, during the week, and on Monday of each week will thoroughly clean and oil the machinery of the different instruments.

RULES FOR THE GUIDANCE OF INSPECTING OFFICERS OF THE SIGNAL-SERVICE, UNITED STATES ARMY.

1. The outfit of an inspecting officer will consist of the following-named instruments, in addition to the necessary blanks, stationery, &c.:

One standard mercurial barometer;
One standard aneroid barometer;
One standard thermometer;
One standard compass.

2. Upon arriving at a station he will carefully compare all station instruments with his standards, making not less than thirty readings of each instrument, and keeping an accurate record of the observations of both his own and the station instruments, and forwarding the same to the Chief Signal-Officer with his inspection report.

3. He will determine by the aid of his compass the accuracy with which the station wind-vane is placed in position upon the true meridian, and, if an error is found, will have it corrected before he leaves the station.

4. He will ascertain by actual measurement whether any change has been made in the elevation of the barometer, thermometer, or rain-gauge since the station was last inspected, and if such change has been made, will report the amount and date of the same.

5. In the event of any change having been made in the location of the office since the date of the last report, he will ascertain the exact elevation of the new office, and of the several instruments above the bench-mark of the station, as given in circular No. 2, issued from the office of the Chief Signal-Officer, under date of January 11, 1873, and is authorized to employ for this purpose, whenever necessary, the city engineer, or, in his absence, any other responsible person.

6. He will note carefully the condition of the office-room or rooms, and when they are found improperly kept or arranged, will see that the proper changes are made before he leaves the station.

7. He will examine in detail the office-books from the date of the last previous inspection, and if errors are found, will point them out and instruct the observer in charge how to correct them. In case of omission on the part of the observer in charge to keep all or part of any record, he will report the fact to the Chief Signal-Officer, with such recommendations as he thinks proper, accompanying the report with a written statement from the observer of the cause of said omission.

8. The condition of the several instruments will be thoroughly examined, and when any fault of location or want of cleanliness is discovered, will attend in person to its correction. The observer will be examined as to his knowledge of the instruments and their management in detail, and when found ignorant of any part will be properly instructed.

9. All map and bulletin frames will be personally inspected, and their condition noted from actual observation, and not from the observer's statement. The date of the several maps and bulletins posted in the frames at the time of inspection will be observed, and if the latest issue is not found therein the observer will be called to account for neglect of duty.

10. A full list will be forwarded with each report of all maps and bulletins issued at the station inspected, showing the name and local address of each person, firm, or institution receiving them.

11. The chairman of the meteorological committee or committees, where more than

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one exists at a station, will be visited, and inquiry made as to the conduct of the observer and other men on duty at the station, and the manner in which they perform their special duties. Suggestions will be invited that tend to increase the usefulness of the service by a wider diffusion of the reports.

12. The amount and condition of the property for which the observer is responsible will be noted in the report, and suitable disposition of unserviceable property recommended.

13. The observer in charge will be examined as to his knowledge of the various circulars issued from the central office, and when he does not appear to understand any one or part of one, proper instructions will be given him.

14. The inspector will explain to each observer the proper manner of furnishing items of special interest in the reports to the local newspapers, impressing upon them at all times, however, the fact that these items will not be furnished when the papers can be induced to print full reports.

15. The inspection report of each station must be made out and mailed before the inspecting officer leaves the station.

16. The inspector will be present in person at all the observations made at the station he is inspecting during some one day of his inspection, and will correct on the spot any errors into which the observer may have fallen.

17. He will examine the assistants on duty at the station as to their knowledge of their practical duties, and also as to the progress made by them in the theoretical knowledge of meteorology, and will report the result of such examination to the Chief Signal-Officer.

PAPER 9.

Exhibiting the communications sent from and received at the office of the Chief Signal-Officer (exclusive of telegrams) from October 1, 1872, to September 30, 1873.

SENT.

DIVISION OF TELEGRAMS AND REPORTS FOR THE BENEFIT OF COMMERCE AND AGRICULTURE.

To heads of departments and bureaus	94	
To observer-sergeants in reference to their duties	7,843	
In reply to applications for stations and others similar	68	
To telegraph companies in reference to transmission of weather reports	280	
To boards of trade, chambers of commerce, agricultural societies, &c.,	5,309	
To foreign correspondents relating to this division	368	
General and special orders and circulars with reference to this division	5,780	
Miscellaneous	1,592	
Total		21,334

SIGNAL-DIVISION.

To heads of departments and bureaus	142	
Relating to duties and discipline at signal-service school of instruction and post of Fort Whipple, Va	638	
Relating to recruiting and enlistment	277	
Answers to applications for appointment in the signal-service, United States Army	367	
General and special orders and circulars with reference to this division	1,789	
Miscellaneous	842	
Total		4,055

PROPERTY-DIVISION.

To heads of departments and bureaus	681	
To manufacturers and others in reference to instruments, equipments, &c	852	
To observer-sergeants and other enlisted men in reference to property and money accounts	8,161	
In reference to quarterly returns of officers	457	
Miscellaneous	10,892	
Total		21,043
Aggregate		46,432

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RECEIVED.

DIVISION OF TELEGRAMS AND REPORTS FOR THE BENEFIT OF COMMERCE AND AGRICULTURE.

From heads of departments and bureaus	62	
Applications for establishment of new stations	58	
From telegraph companies in reference to transmission of weather reports	208	
From observer-sergeants in reference to their duties	6,163	
From boards of trade, chambers of commerce, and agricultural societies	3,303	
From foreign correspondents relating to this division	118	
Special applications for suggestions for practical use of weather-maps, &c	268	
Reports relative to instruction of observer-sergeants and assistants	3,957	
Mailed reports of observer-sergeants on station	175,324	
Miscellaneous	2,024	
Total		191,485

SIGNAL-DIVISION.

From heads of departments and bureaus	237	
Relating to duties and discipline at signal-service school of instruction and post of Fort Whipple, Va	564	
Relating to instruction in signaling at Fort Whipple, Va., and in different military departments	276	
Relating to recruiting and enlistment	1,017	
Applications for appointment in the signal-service, United States Army	210	
Miscellaneous	1,298	
Total		3,602

PROPERTY-DIVISION.

From heads of departments and bureaus	282	
From manufacturers and others relating to instruments, equipments, &c	538	
From officers concerning property, quarterly returns, &c	1,382	
From observer-sergeants and other enlisted men relating to property and money accounts	13,521	
Regarding property transferred to stations	1,869	
Miscellaneous	4,896	
Total		22,488
Aggregate		217,575
Aggregate sent		46,432
Aggregate received		217,575
Aggregate sent and received		264,007

PAPER 10.

Table showing the number of meteorological instruments purchased and issued from October 1, 1872, to September 30, 1873.

Instruments.	Barometers.	Thermometers.	Hygrometers.	Anemometers.	Anemoscopes.	Maximum thermometers.	Minimum thermometers.	Aneroid barometers.	Thermometer tubes.
Issued to stations	120	181	38	91	20	37	40	1	7
Issued for special uses	13	22	7	10	2	6	6	9	2
Issued at last report	84	87	106	76	114	29	32	.....	.....
Returned for repairs, &c	37	43	27	70	5	14	14	.....	7
Total number now on station	156	177	114	91	128	50	52	1	.....
Total number purchased	64	238	50	7	40	21	21	20	25

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PAPER 11.

LIST OF CONTRIBUTIONS TO THE LIBRARY FROM FOREIGN SOURCES DURING 1872–'73.

1. Cenni storici sul successive soiluppo della meteorologia e su alcune su importanti applicazioni. Studio del Dr. Antonio Abetti.
2. Die Regenverhältnisse des Königreichs Hannover, nebst ausführhrlicher Darstellung aller den atmosphärischen Niederschlag und Verdunstung. Von Dr. M. A. F. Prestel. Emden, 1864.
3. Die Witterungsverhältnisse des Jahres 1870. Von Dr. H. Schoder. Stuttgart, 1872.
4. Normale Wärmemittel von Stuttgart und Heidenheim. Von Dr. H. Schoder. Stuttgart, 1872.
5. Hülfstafeln zur barometrischen Höhenbestimmung, nebst einer Anleitung zur Untersuchung und zum Gebrauch des Aneroidbarometer. Von Dr. H. Schoder. Stuttgart, 1872.
6. Bericht über die Verhandlungen der Meteorologen-Versammlung zu Leipzig.
7. Die koenigliche staats- und landwirthschaftliche Academie Eldena bei der Universität Greifswald. Von Dr. E. Baumstark. Berlin, 1870.
8. Circular No. 1, från Upsala Observatorium till de of Läneus kongliga Hushållnings Sallskaper utsedde meteorologiska Observatorer.
9. Die Winde in ihrer Beziehung zur Salubrität und Morbilität. Ein Beitrag zur medizinischen Witterungs- und Klima-Kunde. Von Dr. M. A. F. Prestel. Emden, 1864.
10. Femaarsberetning fra det kongelige Landhusholdningsselskabs meteorologiste Comitee for 1866–'70. Bed Poul la Cour. 1872.
11. Der Sturmwarner und Wetteranzeiger. Von Dr. M. A. F. Prestel. Emden, 1870.
12. Die periodischen und nicht-periodischen Veränderungen des Barometerstandes, so wie die Stürme und das Wetter über der Hannoverschen Nordseeküste. Von Dr. M. A. F. Prestel. Emden.
13–15. Magnetische und meteorologische Beobachtungen auf der k. k. Sternwarte zu Prag in den Jahren 1869, 1870, und 1871. Von Carl Horustein. Prag. 3 vols.
16–18. Specola reale di Napoli. Osservazioni meteoriche dall' Luglio, Agosto, Settembre, 1872, fatte dall' astronomo Professore F. Briachi. 3 vols.
19. Annuaire à l'usage de Constantinople pour l'année bissextile 1872. Publié par l'Observatoire impérial météorologique. Constantinople.
20–21. Bulletin de l'Observatoire impérial météorologique de Constantinople. Années 1870–1871. 2 vols.
22. Académie des sciences. Physique du globe. Note sur les courants magnétiques observés dans les fils télégraphiques pendant l'aurore boréale du 4 février. Par M. H. Tarry.
23. Sur les pluies de poussière et les pluies de sang. Par M. H. Tarry.
24. Conférences militaires belges. Télégraphie électrique de campagne. Par Van Den Bogaert. Paris, 1870.
25. Annuaire météorologique de l'Observatoire physique central pour l'année 1873. Paris.
26. Applications nouvelles de la science et de l'industrie à l'art de la guerre. Par H. Wauwermans. Paris, 1869.
27. Études sur quelques tempêtes. Par Hugo Hildebrand Hildebrandsson. Gothembourg, 1872.
28. Relatorie do service do Observatorio de infante d'Luiz no anno meteorologico de 1870–'71. Lisboa, 1872.
29. Observaciones magneticas y meteorologicas del Real colegio de Belen de la Compañia de Jesus en la Habana. Año meteorologico de 30 de Noviembre de 1870 á 30 de Noviembre de 1871. (2 copies.) Habana, 1872.
30. Memoria de la marcha regular ó periodica é irregular del barometro en la Habana desde 1858 á 1871 inclusivo. Por el R. P. B. Viñes, S. J. Habana, 1872.
31. (Chart.) Commission européenne du Danube. Observations météorologiques prises à l'embouchure de Soulina.
32. (7 charts.) Meteorological observations, St. Xavier's College, Calcutta, January, 1869, to June, 1872.
33. Results of meteorological observations made at the Radcliffe Observatory, Oxford, in the year 1869. By the Rev. Robert Main, Oxford, 1872.
34. Suggestions on a uniform system of meteorological observations. Utrecht, 1872.
35. Magnetic survey of the east coast of France in 1869. By the Rev. Steven J. Perry.
36. Report upon the geological survey of Newfoundland for the year 1871. By A. Murray.
37. Account of the operations of the great trigonometrical survey of India. By Col. J. S. Walker.

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38. Observatoire impérial météorologique. Arabic meteorology.
39. Annalen des physikalischen Central-Observatoriums. Herausgegeben von H. Wild. Jahrgang 1870. St. Petersburg 1872.
40. Newfoundland almanac, 1873.
41. Report of the Kew committee for the fifteen months ending October 31, 1872.
42. L'aéronaute. Bulletin mensuel international de la navigation aérienne, janvier 1873.
43–44. Monthly record of results of observations in meteorology, terrestrial magnetism, &c., &c., taken at the Melbourne Observatory, September and October, 1872, under the superintendence of Robert L. J. Ellery.
45. Om Wind og Vejr, meteorologiens Hovedresultater af H. Mohn. Christiania, 1872.
46. Monthly notices. Meteorological Society of Mauritius, November, 1872.
47. Meteorological Observatory, Pumplemousses. "Results of observations taken in 1871."
48. Tabelle zur Schiffahrt im grössten Kreise, entworfen von Dr. Carl Friesach, k. k. Hauptmann in d. A.
49–40. Sur les pluies de poussier et les pluies de sang par M. H. Tarry.
51. Untersuchungen über die Theorie und Praxis des Wagebarometers. Von Paul Schreiber. München, 1872.
52. Anno 24° ed 25°. Della corrispondenza scientifica. Bulletino delle osservazioni ozonometriche meteorologiche, fatte in Roma da Caterina Scarpellini.
53. Schweizerisches Bundesblatt, Februar 1873.
54. Official No. 16. Quarterly weather-report of the meteorological office, London. Part 1, January to March, 1872.
55. Daily weather-reports, January to June, 1872. Presented by the meteorological office, London.
56. Die Klimatologie Norwegens. Von H. Mohn. Christiania, 1872.
57. Anno XXV° della corrispondenza scientifica. Bulletino delle osservazioni ozonometriche meteorologiche, fatte in Roma da Caterina Scarpellini.
58. Meteorolgical observations, St. Xavier's College Observatory, Calcutta, for July to December, 1872.
59. Monthly records of results of observation in meteorology, terrestrial magnetism, &c., taken at the Melbourne Observatory during January, February, March, April, May, June, July, and August, 1872, under the superintendence of Robert L. J. Ellery.
60. Discussion of the meteorological and magnetical observations made and collected at the Flagstaff Observatory, Melbourne, and at various stations in the colony of Victoria, March, 1858, to February, 1859.
61. Results of the meteorological observations taken in the colony of Victoria, during the years 1859–'62, and of the nautical observations collected and discussed at the Flagstaff Observatory, Melbourne, during the years 1858–'62. By George Newmayer.
62. Results of the magnetical, nautical, and meteorological observations made and collected at the Flagstaff Observatory, Melbourne, and at various stations in the colony of Victoria, March, 1858, to February, 1859.
63. Sammlung von Hülfstafeln zur Berechnung barometrischer Höhenbestimmungen. Zusammengestellt von A. Moritz und H. Kiefer. Tiflis, 1870.
64. Osservazioni meteorologiche con speciali istruzioni intorno a quelle pluvionietriche raccolte sotto la direzione del P. Francesco Denza, direttore dell' osservatorio del R. Collegio Carlo Alberto in Moncalieri. Torino, 1873.
65. The Greek Philological Society in Constantinople, Tomoe E, 1870–'71.
66. Nouvelle classification des nuages, par André Poey. Paris, 1873.
67. Zeitschrift der oesterreichischen Gesselschaft für Meteorologie. Redigirt von Dr. C. Jelinek und Dr. J. Hann. Band 7. Wien, 1872.
68. Meteorologische Beobachtungen angestellt auf der Leipziger Universitäts-Sternwarte im Jahre 1871. Von Prof. Dr. C. Bruhns.
69. Die physikalischen Einwirkungen des Waldes auf Luft und Boden und seine klimatologische und hygienische Bedeutung. Von Dr. Ernst Ebermayer. Aschaffenburg, 1873.
70. Graphische Darstellungen über den Gang der Boden- und Luft-Temperatur im Freien und im Walde. Extra-Beigabe zu Dr. E. Ebermayer. Aschaffenburg, 1873.
71. Ricerche fisico astronomiche intorno all' uranolito caduto nell agro Romano il 31 di Agosto 1872, del padre G. Stanislaus Ferrari.
72. Om Askvadren I sverige år 1871, af Hugo Hildebrand Hildebrandsson, Upsala Universitetets, årsskrift, 1873, Upsala, 1873. *With* Bulletin météorologique mensuel de l'Observatoire de l'Université d'Upsal. (Vol. 5, Dec., 1872, No. 1.)
73. Monthly record of observations in meteorology, &c., at Melbourne Observatory, November and December, 1872, and January, 1873. (Robt. L. J. Ellery.)
74. Monthly notices, Meteorological Society of Mauritius. (February 13, 1873.)
75. Stonyhurst College Observatory. Results of meteorological and magnetical observations, 1872.

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76. Annales de la Societé d'émulation du département des Vosges. Tome 14e, 1er cahier. Paris, 1871.
77. Le stelle cadenti del 27 Novembre 1872, nota del P. Angelo Secchi. Roma, 1873.
78. Specola reale di Napoli. Osservazioni meteoriche dell' Ottobre, Novembre, Dicembre, 1872, fatte dall' astronomo Professore F. Brischi. (3 parts.)
79. Monthly record of meteorological observations taken at Melbourne Observatory, for February, 1873, under the superintendence of Robert Ellery.
80. Notes on the climate of Victoria, by same.
81. Det Kongelige Norske Videnskabers Selskabs Skrifter i det 19de Aarhundrede, 7de Binds, 1st Hefte, (med 6 Plancher.) Throndhjem, 1872.
82. Die Pflanzenwelt Norwegens. Ein Beitrag zur Natur- und Culturgeschichte Nord-Europas. Von Dr. F. C. Schübeler. (Allgemeiner Theil.) Christiania, 1873.
83. Norsk Meteorologisk Aarbog fur 1871, udgivet af det Meteorologiske Institut. Christiania, 1872.
84. Annalen des physikalischen Central-Observatoriums. Herausgegeben von H. Wild. Jahrgang 1871. St. Petersburg, 1873.
85. Jahrbücher der k. k. Central-Anstalt für Meteorologie und Erdmagnetismus. Von Carl Jelinek und Carl Fritch. Wien, 1873.
86. Mittheilungen aus dem Archiv des Voigtländischen alterthumsforschenden Vereins. 41ster, 42ster und 43ster Jahresbericht.
87. The cyclone in the Bay of Bengal in June, 1872, by W. G. Wilson, officiating meteorological reporter to the governor of Bengal.
88. Meteorolog-Bulletin des physikalischen Central-Observatoriums. St. Petersburg, 1872–'73.
89. Bulletin international de l'Observatoire de Paris, 1872–'73.
90. Telegrafische Witterungs-Berichte. Von k. k. meteorologischen Central-Institut Hohe-Warte bei Wien, 1873. F. Osnaghi.

Paper 12.

ACCOUNT OF SALES OF MAPS.

1873.			
March	31.	30 maps, in two colors, at 3 cents	$0 90
April	15.	60 maps, in two colors, at 3 cents	1 80
May	1.	100 maps, manifold	2 75
	8.	30 maps, in one color, at 2 cents	60
	12.	30 maps, in one color, at 2 cents	60
	13.	50 maps, in one color, at 2 cents	1 00
June	9.	60 maps, in one color, at 2 cents	1 20
	10.	10 maps, in one color, at 2 cents	20
	12.	5 maps, in one color, at 2 cents	10
	17.	75 maps, in one color, at 2 cents	1 50
	17.	50 maps, in one color, at 2 cents	1 00
	20.	100 maps, manifold	2 75
	25.	50 maps, in one color, at 2 cents	1 00
	26.	25 maps, without reports, at 1½ cents	37
July	17.	333 maps, in two colors, at 3 cents	9 99
	17.	200 maps, in one color, at 2 cents	4 00
	20.	25 maps, in one color, at 2 cents	50
	25.	13 maps, in two colors, at 3 cents	39
Aug.	11.	104 maps, in two colors, at 3 cents	3 12
	25.	93 maps, in two colors, at 3 cents	2 79
Sept.	11.	14 maps, in two colors, at 3 cents	42
	19.	100 maps, manifold	2 75
	19.	50 maps, in one color	1 00
	25.	93 maps, in two colors, at 3 cents	2 79
	25.	5 maps, in one color, at 2 cents	10
	30.	30 maps, in two colors, at 3 cents	90
			44 52

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PAPER 13.

STATISTICS OF STATIONS.

Monthly and annual mean pressure, October, 1872, to September, 1873.

Stations.	1872.			1873.									Annual mean.
	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	
Alpena, Mich	.....	29.977	30.105	30.029	29.985	30.001	29.933	29.963	29.926	29.961	30.042	29.993	.....
Augusta, Ga	30.120	30.177	30.240	30.126	30.088	30.169	30.019	29.983	30.041	30.090	30.071	30.079	30.100
Baltimore, Md	30.107	30.106	30.175	30.106	30.033	30.021	29.947	30.014	29.999	30.026	30.064	30.091	30.057
Boston, Mass	30.067	29.993	30.061	30.072	29.909	29.858	29.908	29.992	29.957	29.987	30.056	30.052	29.992
Breckenridge, Minn	30.057	30.164	30.386	30.225	30.027	30.050	29.994	29.865	29.734	29.853	29.914	29.923	30.016
Buffalo, N. Y	30.016	29.947	30.028	29.964	29.961	29.881	29.855	29.917	29.883	29.915	29.994	29.990	29.945
Burlington, Vt	30.059	29.995	30.059	30.058	29.931	29.864	29.910	29.980	29.900	29.932	30.044	30.016	29.979
Cairo, Ill	30.156	30.150	30.294	30.130	30.054	30.082	29.909	29.865	29.929	30.004	30.028	30.046	30.057
Cape May, N. J	30.098	30.101	30.167	30.087	30.014	30.006	29.943	30.007	30.001	30.033	30.054	30.088	30.049
Charleston, S. C	30.058	30.140	30.207	30.112	30.069	30.153	30.006	29.980	30.039	30.097	30.077	30.054	30.082
Cheyenne, Wyo	30.048	29.950	29.914	29.831	29.778	29.918	29.910	29.854	29.906	30.089	30.112	30.051	29.957
Chicago, Ill	30.093	30.080	30.234	30.051	30.076	30.000	29.901	29.868	29.934	30.009	30.012	30.008	30.022
Cincinnati, Ohio	30.160	30.186	30.282	30.148	30.023	30.075	29.933	29.915	29.947	30.018	30.038	30.034	30.063
Cleveland, Ohio	30.080	30.069	30.178	30.048	30.005	29.990	29.906	29.897	29.907	29.959	29.991	29.996	30.002
Corinne, Utah	30.132	30.192	30.094	30.092	29.964	30.106	30.028	29.932	29.984	30.043	30.074	30.063	30.058
Davenport, Iowa	30.110	30.118	30.295	.....	30.050	30.019	29.885	29.882	29.883	29.954	30.000	29.993	.....
Denver, Colo	30.093	30.034	29.992	29.916	29.851	29.979	29.971	29.915	30.007	30.106	30.126	30.070	30.005
Detroit, Mich	30.051	30.014	30.127	30.019	30.005	29.967	29.885	29.912	29.905	29.949	30.007	29.993	29.986
Duluth, Minn	29.988	29.996	30.220	30.063	29.933	29.960	29.951	29.945	29.839	29.882	29.968	29.916	29.971
Escanaba, Mich	30.004	29.901	30.093	29.983	29.856	29.886	29.907	29.875	29.866	29.923	29.998	29.946	29.936
Fort Benton, Mont	30.040	30.093	30.085	29.926	29.926	29.903	30.101	29.939	29.930	29.996	30.001	30.069	.....
Fort Sully, Dak	29.801	29.955	30.098	29.967	30.105	30.057	30.050	29.906	29.788	29.786	29.820	29.901	.....
Galveston, Tex	30.083	30.160	30.203	30.130	30.068	30.135	30.010	29.900	29.900	30.070	30.050	30.020	30.068
Grand Haven, Mich	30.021	29.963	30.119	29.953	29.963	29.947	29.865	29.878	29.890	29.940	29.996	29.976	29.959
Indianapolis, Ind	30.093	30.112	30.218	30.056	30.044	30.030	29.896	29.895	29.905	29.982	30.013	30.032	30.023
Indianola, Tex	29.927	29.945	29.927	29.886	30.062	30.128	30.021	29.900	29.989	30.065	30.065	30.025	29.995
Jacksonville, Fla	30.079	30.151	30.231	30.137	30.124	30.184	30.053	29.980	30.032	30.052	30.071	30.023	30.095
Keokuk, Iowa	30.017	30.065	30.221	30.032	30.044	30.010	29.864	29.863	29.877	29.904	29.966	29.990	29.992
Key West, Fla	29.959	30.031	30.117	30.075	30.129	30.154	30.044	29.975	30.048	30.070	30.059	29.985	30.054
Knoxville, Tenn	30.130	30.180	30.230	30.119	30.056	30.107	29.960	29.927	29.993	30.061	30.030	30.075	30.072
La Crosse, Wis	.....	30.036	30.254	30.119	30.048	30.017	29.928	29.922	29.888	29.955	30.026	29.992	.....
Lake City, Fla	30.043	30.230	30.182	30.099	30.107	30.171	30.035	29.967	30.036	30.090	30.073	30.021	30.087
Leavenworth, Kans	30.069	30.126	30.300	30.110	30.036	30.015	29.851	29.794	29.840	29.915	29.951	29.977	29.999
Lexington, Ky	.....	30.113	30.210	30.053	30.048	30.082	29.921	29.882	29.953	30.027	30.022	30.051	.....
Louisville, Ky	30.082	30.115	30.205	30.040	30.047	30.080	29.905	29.860	29.931	30.069	30.016	30.046	30.060
Lynchburgh, Va	30.128	30.106	30.224	30.132	30.014	30.037	29.916	29.968	29.987	30.029	30.036	30.084	30.060

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Monthly and annual mean temperatures, October, 1872, to September, 1873.

Stations.	1872.			1873.									Annual means.
	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	
	°			°	°	°	°	°	°	°	°	°	°
Alpena, Mich	45	31.4	17.1	15.6	17.8	25.7	36.3	46.9	60.2	63.9	63.9	53.7	39.79
Augusta, Ga	62	48.9	41.7	44.8	49.9	52.3	64.2	72.4	78.6	80.8	78.8	74.4	62.41
Baltimore, Md	58.3	43.6	32.2	34	35.5	40.3	51.9	62.3	73.9	79.4	76.3	68	54.64
Boston, Mass	52.1	40.7	24.1	26.3	27.5	34.2	44.6	56.8	67.2	72.8	68.7	61.7	48.05
Breckenridge, Minn	45	21	0.4	2.3	8.6	16.4	35	52	69.5	67.6	67	49.1	36.15
Buffalo, N. Y	50.1	37.5	26.1	24.8	26	31.2	42	54.5	67.5	69.5	67.2	59.3	46.3
Burlington, Vt	47	35.4	15.4	17.5	18.9	28	41.3	54	66.01	70.8	67.2	59.3	43.4
Cairo, Ill	57.6	40.7	29.2	30.3	38.4	46.5	55.4	66.7	77.5	78.7	78.2	68.9	55.67
Cape May, N. J	56.2	43	31.4	32.7	32.2	37	46.8	55.9	67.7	73.2	72.2	66.5	51.93
Charleston, S. C	64.8	53.8	45.8	48.1	53.4	53.6	64.5	74.9	78.1	80.9	77.7	76	64.3
Cheyenne, Wyo	45.2	28.2	21.4	24.6	25	39.7	34.4	49.2	69.5	69.7	69.2	55.9	44.5
Chicago, Ill	50.8	32.5	20.3	20.7	24.6	34.6	42.3	53.9	70.2	71.2	71.7	62.4	46.26
Cincinnati, Ohio	56.9	40.4	29.5	31.1	35.9	41.9	53.9	66.5	77.8	77.6	76.3	67.6	54.61
Cleveland, Ohio	52	35.8	21.9	24	26.9	32.9	44.8	57.3	70.2	71.9	70.6	63.2	47.62
Corinne, Utah	48.9	29.6	31.2	31.4	24.3	36.7	44.3	51.8	69.1	76.2	73.3	61.4	48.18
Davenport, Iowa	52.1	32.9	18.7	17.1	23.9	36.7	46.9	59.6	77.9	75.6	78	62.3	48.47
Denver, Colo	50	32.5	27.6	30	30.3	44	39.8	53.3	68.9	71.4	70.8	59.7	46.19
Detroit, Mich	49.1	32.9	20	20.6	22.9	30.9	42	56.9	69.3	70.5	70.1	60.9	45.5
Duluth, Minn	46.6	26.9	5	7.6	15.1	25.3	38.4	45.8	58	64.5	64.4	53.1	37.55
Escanaba, Mich	47	27.2	11.3	13.3	15.4	23.9	36.2	50.9	69.3	68.4	65.2	52.1	40.01
Fort Benton, Mont	47.2	24.3	11.3	16.5	18.4	36.4	40.7	52.4	64.1	69.8	69.3	53.2	41.97
Fort Sully, Dak	52.3	24.5	11.5	9.6	14.7	32.4	41.5	54.5	74.2	74.3	75.5	57.3	43.52
Galveston, Tex	71.9	58.2	51.4	49.8	59.3	63.2	68	75	82	83	83	80	68.73
Grand Haven, Mich	48.3	33.4	20.5	19.2	22.6	30.2	41.9	54.9	69.1	68.2	69.1	57.8	44.6
Indianapolis, Ind	50	36	24.4	25	30.4	38.5	50.3	64	77	75.5	75	64	50.84
Indianola, Tex	71.5	57.5	50.3	51.5	60.3	65.3	67.6	75.5	82.3	82.2	82.1	79.8	68.82
Jacksonville, Fla	68.2	58	51	52.4	59.2	58.9	69.2	75.6	80	81.6	81.6	78.5	67.85
Keokuk, Iowa	55.5	34.6	20.5	17.6	26.1	38.7	48.5	61.5	77.9	76.3	78.7	63.8	49.97
Key West, Fla	78.2	73.7	69.1	69.9	72.1	71.5	76.8	82.4	83.6	83	83.5	82.5	77.19
Knoxville, Tenn	55.3	40.2	33.5	34.6	41.2	43.8	56.8	68.8	74.3	76.2	75.3	68.6	55.71
La Crosse, Wis	.....	27.3	9.7	6.7	17.7	30.7	43.7	57.5	73.6	72.4	71.9	56.6	.....
Lake City, Fla	66.7	56.1	49.7	50.3	57.6	57.8	67.7	75.2	77.7	79.8	78.6	76.8	66.16
Leavenworth, Kans	56.4	35	21	19	30	42.1	48.6	63	75.5	77.5	79.2	65.4	51.05
Lexington, Ky	.....	38.2	27.9	30.4	35.6	40.9	53.1	64.7	73.7	76.5	73.7	66.8	.....
Louisville, Ky	56.6	39.5	29.4	31.1	36.8	43.3	54.6	67	78	79	78	69.5	55.23
Lynchburgh, Va	55.9	40.9	32	33.6	38.5	42	59.5	69.7	72.3	75.7	73.1	69.1	54.6
Marquette, Mich	45.5	29.1	12	12.5	18	25	35.4	45.2	59	63.1	63.4	51.4	38.3
Memphis, Tenn	59	44	34	35	44	50	60	69	79	78	79	71	58.5
Milwaukee, Wis	47.2	31.4	15	16.8	21	32.2	38.9	49.7	66.9	68.1	70.5	59.8	43.13
Mobile, Ala	65.6	54	47.9	46.3	56.1	57	65.7	73.9	79.4	82.2	80.2	76.1	65.36
Montgomery, Ala	63.3	50.2	45.5	44.1	53.3	52.1	64.2	67.1	79.2	81.8	80.2	75	63
Mount Washington, N. H	29.6	18.5	3.8	10.1	7.3	12.4	22.6	30.4	42.9	47.1	44.3	38.1	25.59
Nashville, Tenn	58.5	42.8	33.9	35.4	43.6	47.4	59.4	70	77.9	80	80.1	72.5	58.45
New Haven, Conn	.....	.....	.....	24.7	26.9	33.2	44.2	55.9	67	72.3	69	62.7	.....
New London, Conn	51.3	40.4	23.6	25.5	26.3	32.9	43.6	54.4	64.9	71.2	69	61.8	47.07
New Orleans, La	68.4	57.4	51.4	49.5	60.5	60.4	66.9	73.7	80.1	82.4	81.2	78.7	67.55
New York, N. Y	54.1	40.8	27.7	28.5	29.3	35.7	46.3	57.6	68.9	73.9	71.4	65.4	49.96
Norfolk, Va	58.9	46.2	36.8	40.7	41.3	45.5	56.7	64.1	74.2	79.3	76.7	70.2	57.55
Omaha, Nebr	53	30.6	19	16.9	26.9	38.2	44.2	59	74.4	75.7	77.1	60.6	47.86
Oswego, N. Y	50.3	38.3	23.9	23.7	24.3	30.2	42.6	53.1	65.3	70.4	66.2	60.8	45.75
Pembina, Dak	.....	18.4	.....	.....	.....	12.9	33.9	52.3	66.1	65.2	64.4	46.8	.....
Philadelphia, Pa	52.9	41.2	28.9	28.9	29.8	37.1	45.3	59.6	70.6	76.4	72.3	66.1	50.75
Pittsburgh, Pa	52	36	25	29	29	36	48	61	72	74	71.9	63.6	49.79
Portland, Me	47.6	36.3	18.3	19.8	21.8	31	40.9	52.4	62.3	68.4	65.1	58.3	43.51
Portland, Oreg	53	41.6	41.9	44.4	40.6	48.1	51.3	55.9	61.5	68	67.7	61.9	53.82
Punta Rassa, Fla	75	68.3	63.5	62	66.4	65.2	72.8	78.8	80.6	80.9	80.5	80.1	72.82
Rochester, N. Y	47	34	20	20	22	29.5	42	55.8	67.7	70.7	66.7	60.3	44.64
San Diego, Cal	62	58.5	54.6	53	52.9	57	58	60	63	66	68	68	60.02
San Francisco, Cal	58.6	55.7	52	54.1	50.4	54.2	54.4	55.6	57.8	57.9	59.1	57.8	55.63
Santa Fé, N. Mex	49	33	32.6	29	32	44	44	56	65.6	71	66	61	49.02
Savannah, Ga	64	54	46.5	49	55	55	67	74	78.8	81	80	76.4	65.05
Shreveport, La	65.5	50	42	42.2	52	58.9	64.8	72.9	79.6	81.6	81.7	75.7	63.91
Saint Louis, Mo	57.7	38.1	25.7	26	33.6	42.6	51.2	65.1	77.1	77.5	78.5	66.6	53.3
Saint Paul, Minn	47.2	23.8	.....	6.7	14.3	26.7	41.9	55.1	73	71	70.7	41	.....
Toledo, Ohio	51.3	34.3	21.1	22.2	26.6	34.9	45.9	60.2	74	74	72.1	62.6	48.26
Vicksburgh, Miss	65.1	51.3	45	43	54	58.5	66.2	73	80	82	82	76	64.67
Virginia City, Mont	43.9	23.6	18.8	23.4	15.6	.....	.....	.....	56.9	.....	.....	.....	.....
Washington, D. C	55.8	42.2	31	31.7	31.1	41.5	53.3	63.6	76.5	80.3	74.9	68.3	54.18
Wilmington, N. C	62.4	51.7	41.5	47	50.2	51.6	62.9	71.2	78	81.4	79.6	74.1	62.63
Woods' Hole, Mass	.....	.....	.....	29	31	33.9	42	51	61	68	68	62	.....
Wytheville, Va	.....	.....	.....	.....	35.5	38.3	49.8	59.5	67.8	70.5	68.7	61.6	.....
Morgantown, W. Va	.....	.....	.....	.....	32.8	38.3	50.2	61.5	70.6	71.2	70.6	62.8	.....

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Maximum, minimum, and mean temperature.

BALTIMORE, MD.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	66	53	60	45	40	17	46	33	41.5	15.5	38.5	22	58.5	40.5	59	47	75.5	49	88	72	94	77	93	70
2	65	47	54	46	55	36	47.5	31.5	32	18	37	27	70	50.5	59	47	81	50	93	77	91	75	84.5	70.5
3	75	53	54	44	50	37	45	35.5	48	15.5	35	12.5	66	43	56.5	45.5	80	58	96.5	75	90	73	83.5	61.5
4	74	61	56	43	43	33.5	49	34.5	62	41	21	5	64	47	65	44	89	59	92	76	81	69.5	87.5	72.5
5	73	58	56	37	41.5	31	44	33	50	35.5	28.5	10	63	46	71.5	46	87	70	91	71.5	81.5	66	90	72
6	80	66	56.5	50	52	29	44.5	29	47	38	39	13	57	44	70	51	88	65	84	68.5	84	62	76.5	63
7	74	62	60	49	45.5	34.5	36	24	48	35	50.5	13.5	61	49	60	49.5	79	67	83.5	62	89	66	72	50
8	66	54	61	43	45	34	40	23	53	35.5	61	32	64	49.5	54	48	80	57	84	64	87.5	70.5	73	60
9	68	46	55	41	42	22	40	28	34	19	57.5	38.5	75	53	65	52	83.5	61	83	64	86	72	75	54
10	75	50	54	38	30	18	34.5	21	41.5	17.5	47	36	63	45	66	52	80	61.5	86	64	82.5	68.5	72	53
11	56	45	55	38	37	20	28	14	53	33.5	57	35	63	47	65	54.5	77	69.5	85	69	83	65	75	58
12	57	40	63.5	44.5	34	24	37	22	49.5	31	43	35	51	42	70.5	51	80.5	60	83	65	81	66	78	58
13	60	49	52	40.5	37	24	43	27	36	24.5	51	33	60	42	83	54	79	59	84	69	79	65	84	62
14	56	43	53	46	49	27	56	37	34	22.5	55	32	67.5	46.5	67	48	77	53	94.5	69	73	65	67	52
15	56	42	49	34	52	38	41	36.5	39	23.5	68	39	65	44.5	70	50.5	71	65	91	74	79	66	67.5	40
16	69	46	39.5	30.5	46.5	32	58	38	40.5	31.5	50	39	54.5	40.5	72	49.5	88.5	65	00	74.5	84	67	79	41
17	62.5	45	41	28.5	40	32.5	51	35	48.5	37	60	33	46.5	38.5	71	53.5	89	74	93	73	75	64	71	55
18	61	53	44.5	31	40	28	37	27	49	34	62.5	32	56.5	40.5	73.5	50	88	67	96	76	76	64	74	61
19	61	46	47	28	39	30	32.5	22	55	36.5	59.5	41.5	58	43	66	54.5	93	73	88	74	80	69	76.5	63
20	59	39	44	32	43	30	39	23	50	37	51	36.5	59	39	59	54	95	77.5	83	66	76	68	67	52
21	69	47	40	25.5	37	27	44	33.5	43	30	42.5	31	55	44	57	52	88	66.5	85	67	83	71	62	45
22	69	52	42	34	30	6.5	43	35.5	35	24.5	43	32.5	58	(*)	66	56	89.5	68	86	63	85	71.5	66	44
23	69	55	50	36	40	17	38	30	32	11.5	64	30.5	46	(*)	77	60	79	65	90	66	90	71.5	73	60
24	54	49	54	35	28	8.5	35	28	24	2	55	29	55	(*)	87.5	62	72	64	92	71.5	76	61	73	61
25	65	56	62	39	19	8.5	37	19	37	20	35	29	52.5	(*)	84	65	79	61	94.5	73	81.5	57	76	63
26	68	57	54	38	28	14.5	39	23	41	27.5	40	30.5	55	(*)	83	63	81	61	91.5	74	85	70	76	62
27	67	54	47	34	26	13.5	39	32	40	30	41	23	61	43	80	63.5	85	60	89	73	76	68	75	58
28	57	48	41	29	28	13	39.5	23.5	36	23.5	52	28	60	42	89	69.5	85	71	87	70	74	62	76	64
29	54	31	38	20	37	21.5	25.5	5.5	.....	.....	56	29	51	46	84.5	69.5	85	71	89	70	71	64	81	64
30	52.5	38	27.5	17	38	26	24	4	.....	.....	61	41	64	47	84	57.5	86.5	73	91	72	80	67	73	53
31	54	38	.....	.....	45	31	38.5	8	.....	.....	59	29	.....	.....	69	50.5	.....	.....	90	71	88	67	.....	.....
Range	42°		46°.5		46°.5		62°		60°		63°		36°.5		45°		46°		34°.5		33°		53°	
Monthly means	58°.3		43°.6		32°.2		34°		35°.5		40°.3		51°.9		62°.3		73°.9		79°.4		76°.3		68°.0	

* Minimum thermometer broken.

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Maximum, minimum, and mean temperatures—Continued.

BOSTON, MASS.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	65	56	49	42	32	19	30	11	34	20	43	31	55	36	73	46	79	47	80	62	89.5	68	83	64
2	62	48	56	41	47	29	29	5	14	3	41	22	43	37	58	40	73	55	92	67	90	70	75	61
3	57	48	43	38	42	35	41	28	39	8.5	29	22	50	37	40	34	58	50	91	72	96	71	74	56
4	61	45	46	35	38	30	42	27	52	34	26	15	53	37	61	34	70.5	49	92	70	83	66	80	60
5	60	43	55	32	37	36	37	21	41	28	32	12	43	35	69	43	69	52	90	69	75	60	89	66
6	75	55	54	41	42	29	41	22	45	25	40	13	44	39	65	42	73	50	83.5	61	84	57	71	56
7	74	60	52	43	37	26	30	12	39	33	50	21	44	38	58	42	68	52	75	55	85	65	63	54
8	64	54	51	40	44	29	37	9	46	33	51.5	32	63	42	58	41	65	52	75	59	88	67	70	57
9	64	49	53	40	39	20	37	23	33	6.5	42	29	45	38	48	43	71	50	76	61	82	64	70	49
10	73	47	51	35	24	8	28	13	15	3	34	25	57	38	58	43	76	53	76	60	80	61	66	49
11	53	40	52	33	27	14	14	2	31	10	45	24	60	39	51.5	46	82	61	71	57	73	59	68	54
12	53	35	62	45	19	8	20	8	37	26	45	31	42	35	68	47	76	59	80	57	73	61	82	54
13	53	41	52	41	35	8	41	13	24	14	41	25	37	35	75	47	68	53	85	57	70	59	82	54
14	60	40	49	42	40	22	47	26	27	12	46	31	45	34	60	41	67	52.5	95	61	63	61	59	46
15	58	38	42	34	45	24	26	21	34	16	42	31	50	39	62	43	82	54	96	72	69	59.5	60	43
16	63	43	47	30	33	17	51	21	34	22	45	39	50	40	64	43	89.5	69	79	65	85	62	72	48
17	54	42	41	20	39	23	52	36	43	30	38	23	45	39	60	49	83	63	69	57	79	64	68	50
18	58	47	44	28	30	20	37	29	38	25	44	26	50	37	62	48	83	56	60	56	70	62	74	50.5
19	57	44	45	29	35	24	33	18	47	29	48	36	56	37	67	43	93	59	64	56	79	62	74	60
20	51	36	45	29	39	28	33	16	35	24	37.5	33	58	39	62	43	89	70	79	57	74	62.5	65	48
21	67	42	41	23	33	28	44	33	33	19	42	33	47	37	65	44	77	61	81	59	69.5	61	65	43
22	73	48	47	28	29	4	40	28	23	14	41	20	53	35	65	44	73	55	85	58	70	62	63	42.5
23	71	48	48	32	27	2	27	21	18	4	44	28	56	38	80	56	76	53	88	63	86	60	63.5	49
24	53	46	48	32	15	2	31	12	14	—4	29.5	22	57	38	87	59	75	54	88	72	68	50	67	56
25	53	43	58	39	7	—8	25	13	36	13	30.5	20	54	36	76	58	78	54	88	68	70	54	63	49
26	54	47	43	33	13	—2	25	12	37	25	34	26	52	39	85	56	90	58	94	71	70	56	77	55
27	57	45	44	29	12	3	27	21	40	22	36	16	59	39	84	54.5	88	59	83	72	72	52.5	83	54.5
28	48	39	30	25	20	—2.5	30	19	39	30	51	24	66	40	89	57	91	66	81	67	78	55	90	63
29	49	35	45	21	29	9	10	3	.....	.....	60	35	59	46	85	65	87	68	87	69	82	61	80	64
30	50	35	27	15	20	3	24	—5	.....	.....	44	29	61	43	71	51	87	68	93	62	87	61	72	46
31	48	38	.....	.....	20	7	35	17	.....	.....	49.5	35	.....	.....	61	45	.....	.....	82	69	84	66	.....	.....
Range	40°		47°		55°		57°		56°		48°		32°		55°		46°		41°		46°		47°.5	
Monthly means	52°.1		40°.7		24°.1		26°.3		27°.5		34°.2		44°.6		56°.8		67°.2		72°.9		68°.8		61°.7	

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Maximum, minimum, and mean temperature—Continued.

BRECKENRIDGE, MINN.

Day of month.	1872.						1873.																	
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	75	40	35	31	20	18	25	5	− 7	−25	3	− 3	40	32	60	38	63	54	77	48	70	61	71	44
2	76	37	37	31	32	16	26	16	20	−18	− 6	−21	38	30	63	38	81	58	81	55	71	45	73	49
3	73	40	43	33	17	6	5	−10	15	− 8	1	−32	37	28	70	39	79	60	84	56	78	45	76	56
4	66	50	41	35	17	6	1	−13	3	− 5	24	−11	39	34	70	43	83	51	73	61	86	58	60	45
5	59	37	40	33	25	8	7	−23	24	− 6	32	10	37	33	67	50	86	56	69	44	88	65	54	39
6	56	26	47	26	24	11	34	− 4	38	10	43	25	34	30	62	49	91	62	78	53	82	65	60	42
7	70	36	42	35	37	17	25	− 5	27	14	21	9	30	27	57	49	87	62	74	56	85	57	60	37
8	62	43	43	24	− 2	− 5	−14	−18	14	− 3	31	0	35	24	38	34	62	55	69	44	86	61	65	42
9	38	25	51	37	4	−17	−10	−23	29	− 1	36	6	37	23	40	32	69	47	72	56	80	64	74	47
10	40	13	28	25	13	3	10	−24	22	7	33	18	36	32	56	30	73	51	72	45	79	53	80	50
11	57	19	27	12	12	7	21	3	10	− 2	12	0	37	26	51	39	76	50	81	44	80	63	79	55
12	56	32	27	16	30	4	24	13	20	− 4	30	− 9	54	34	53	37	85	62	90	62	82	56	51	39
13	42	17	20	11	17	15	9	4	22	11	31	12	56	38	43	29	75	58	78	58	78	63	56	23
14	69	15	20	14	1	− 1	26	9	23	4	37	17	37	26	57	32	86	49	79	58	76	65	68	41
15	49	29	23	16	11	−16	− 5	−12	43	21	31	25	26	22	62	37	82	48	88	60	70	54	62	44
16	57	13	25	18	13	−20	−15	−26	39	19	33	6	34	20	69	40	85	48	97	74	76	46	64	26
17	60	30	11	7	−10	−20	9	−19	39	26	38	15	44	24	68	45	90	64	70	54	72	53	67	49
18	69	18	26	− 2	−10	−30	13	− 1	9	0	37	20	41	27	52	48	92	58	71	54	84	56	51	30
19	81	35	9	1	− 8	−25	33	9	30	− 8	5	0	49	28	52	45	78	52	77	45	80	53	53	19
20	69	34	28	− 5	−16	−31	28	21	−12	−24	14	− 7	36	29	62	43	83	43	86	47	89	61	62	28
21	51	31	31	15	..	−33	21	15	− 9	−25	22	− 3	33	26	69	51	85	64	91	47	69	48	53	35
22	51	13.5	36	25	− 9	−13	7	− 7	− 5	−30	38	5	33	24	70	53	78	66	83	65	73	50	57	29
23	69	25	29	14	−23	−35	−10	−18	0	−16	12	− 8	32	26	62	52	77	62	87	51	76	60	62	27
24	71	35	19	16	−15	−35	−10	−30	15	−12	10	− 1	35	25	69	48	84	49	85	70	76	50	56	48
25	68	36	23	10	− 5	−15	5	−15	33	7	2	− 9	50	30	74	54	90	62	78	55	74	53	51	42
26	69	31	11	4	−22	−27	− 7	−18	21	8	22	−15	48	32	67	51	94	72	79	46	78	56	56	46
27	70	41	− 2	−17	−12	−34	−11	−29	14	− 6	32	10	60	35	69	53	78	61	71	57	77	60	48	34
28	53	49	− 6	−18	11	−13	4	−39	11	1	31	23	50	36	70	47	75	56	81	52	76	65	46	37
29	50	45	12	−18	19	5	28	−10	.....	.....	32	20	57	32	62	49	75	57	82	53	80	45	50	24
30	45	40	35	2	12	5	6	−10	.....	.....	32	27	59	38	68	34	71	52	78	59	77	54	47	30
31	33	34	.....	.....	10	−12	−17	−24	.....	.....	35	17	.....	.....	70	41	.....	.....	78	58	73	61	.....	.....
Range	68°		69°		72°		73°		73°		75°		40°		45°		51°		53°		44°		61°	
Monthly means	45°		21°		0°.4		2°.3		8°.6		16°.4		35°		52°		69°.5		67°.6		67°.0		49°.1	

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Maximum, minimum, and mean temperatures—Continued.

CAIRO, ILL.

Day of month.	1872.						1873.																	
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	73	49	63	43	50.5	30	38	33	33	18	38	32	67	51	73	50	84	61	88	69	83	72	93	73
2	78	51	60	48	58	44	56	36	33	10	36	30	65	42	64	52	85	61	88	73	88	71	87	72
3	86	58	55	38	49	34	46	31	59	32	30	11	78	54	56	49	86	61	92	77	80	67	77	71
4	88	61	68	46	49	26	37	27	62	47	30	10	82	63	67	44	86	62	93	75	80	68	86	71
5	84	62	62	44	52	39	32	24	55	35	49	24	86	70	74	51	81	69	94	73	83	69	85	70
6	67	57	55	39	50	31	32	25	54	35	64	40	86	69	65	61	89	68	87	74	90	64	80	63
7	71	50	67	32	57	37	40	22	62	28	57	47	74	50	67	59	86	67	88	69	85	72	77	61
8	72	48	60.5	43	53	36	39	25	49	34	64	41	50	42	75	57	88	71	80	66	86	71	78	54
9	76	49	63	44	36	17	29	15	47	28	65	44	50	35	65	60	85	72	84	66	91	73	81	56
10	61	46	58	43	26	13	23	6	49	36	69	37	68	42	68	52	80	71	84	68	93	73	86	56
11	60	38	55	46	33	20	50	22	45	39	65	38	61	48	74	50	81	68	83	65	95	75	88	68
12	66	37	52.5	36	34	24	56	41	39	28	46	31	61	39	86	56	84	66	88	67	90	76	86	68
13	64	47	56	38	48	25	63	51	35	28	59	35	69	43	74	63	88	70	91	72	89	71	64	58
14	54	37	38	27	51	32	60	45	45	27	72	41.5	72	36	68	60	84	68	92	75	86	68	69	51
15	68	37	31	25	42	21	59	49	48	36	67	47	52	41	67	61	91	69	96	74	87	67	76	50
16	74	56	31	22	30	24	51	17	49	40	55	39	48	37	78	55	86	72	94	72	75	71	82	50
17	76	57	35	15	33.5	19	17	4	46	39	64	40	48	37	75	59	84	71	92	75	81	68	87	49
18	69	48	38	23	35	28	17	5	65	43	60	47	53	43	73	56	84	70	88	74	86	61	85	61
19	71	42	47	29	32	24	31	8	57	35	68	38.5	72	42	86	64	85	72	77	66	86	61	70	55
20	75	47	34	18	31	15	48	31	55	37	55	33	75	46	78	64	90	72	80	62	87	60	69	49
21	71	50	44	25	19	2	46	37	39	21	49	39	71	44	81	63	88	71	86	68	89	60	75	50
22	62	50	47	34	25	− 5	39	36	24	16	57	33.5	84	61	81	63	90	72	86	64	89	69	62	51
23	62	47	58	36	22	1	38	21	25	14	58	51	48	42	90	66	91	75	90	68	90	69	71	50
24	62	41	63	46	6	− 7	26	15	29	11	65	52	52	39	85	65	94	74	86	72	92	75	68	51
25	63	52	62	37.5	19	− 1	28	15	42	24	55	25	49	39	78	65	91	77	91	72	93	78	76	57
26	69	46	49.5	33	18	10	28	22	55	37	37	19	50	36	80	67	92	71	83	73	95	74	87	60
27	71	41	35	25	23	7	27	11	40	24	52	29.5	62	45	79	65	89	71	77	72	95	70	83	66
28	71	39	41	16	28	14	21	− 1	40	24	56	45	65	49	76	65	88	69	84	70	89	68	78	69
29	68	49	21	7	37	19	17	− 8	.....	.....	63	43	72	48	83	64	88	73	90	71	89	67	64	60
30	65	46	35	16	48	32	35	0	.....	.....	69	46	60	49	86	64	84	69	85	69	93	67	70	47
31	64	41	.....	.....	50	34	45	17	.....	.....	67	39	.....	.....	80	61	.....	.....	89	70	95	70	.....	.....
Range	51°		61°		65°		71°		55°		62°		51°		40°		33°		34°		35°		46°	
Monthly means	57°.6		40°.7		29°.2		30°.3		38°.4		46°.5		55°.4		66°.7		77°.5		78°.7		78°.2		68°.9	

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Maximum, minimum, and mean temperature—Continued.

CHEYENNE, WYO.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	.....	.....	45	28	49	27	40	13	29	− 1	34	10	52	19	43	25	72	41	74	48	79	50	77	53
2	.....	.....	57	28	42	21	30	10	50	5	40	7	58	39	59	25	76	49	82	48	79	53	81	55
3	.....	.....	48	30	56	21	29	3	39	23	45	15	67	38	58	32	72	42	86	50	90	57	73	53
4	.....	.....	43	22	43	32	19	12	32	10	54	26	36	24	56	36	74	41	90	55	88	54	72	46
5	.....	.....	40	14	44	23	39	10	36	12	60	28	28	19	62	34	85	44	92	62	85	62	72	40
6	.....	.....	56	18	45	21	40	25	48	23	55	30	24	5	53	36	85	52	90	51	86	55	61	48
7	.....	.....	59	18	55	18	39	11	31	14	41	19	23	3	(†)	(†)	73	52	81	53	83	57	65	44
8	.....	.....	69	26	46	19	26	− 2	41	9	50	29	32	8	(†)	(†)	59	49	86	53	84	56	76	47
9	.....	.....	40	21	50	19	30	10	52	18	52	23	41	25	(†)	(†)	61	46	82	54	84	54	79	45
10	.....	.....	29	14	28	11	46	22	36	20	48	38	42	21	(†)	(†)	73	45	77	56	85	54	83	45
11	.....	.....	33	16	29	3	55	32	45	15	60	34	60	31	(†)	(†)	78	50	85	58	87	55	76	55
12	.....	.....	43	4	43	12	46	29	33	21	65	45	65	29	(†)	(†)	78	50	88	55	90	54	70	45
13	.....	.....	13	− 4	51	12	44	26	45	18	65	41	45	16	(†)	(†)	81	40	90	50	83	60	73	40
14	.....	.....	6	− 7	39	8	28	13	29	16	61	34	27	15	(†)	(†)	81	49	90	60	77	56	82	50
15	.....	.....	18	7	29	7	28	8	46	16	51	23	35	22	(†)	(†)	82	48	94	60	66	49	82	47
16	.....	.....	36	4	30	6	37	18	51	26	60	23	40	28	45	37	86	50	85	62	76	48	80	41
17	.....	.....	25	1	23	0	43	29	40	10	45	32	55	22	59	36	87	50	81	52	79	48	81	51
18	.....	.....	46	22	20	− 2	46	28	28	9	55	22	59	34	60	37	92	51	81	43	85	47	59	38
19	.....	.....	41	28	15	−11	49	32	37	0	47	29	65	33	65	41	81	50	86	45	85	51	69	41
20	*71	23	43	18	2	− 4	44	29	29	3	57	23	69	29	62	39	90	52	93	53	80	59	67	39
21	51	25	32	16	20	−14	42	16	29	7	62	27	72	46	56	41	87	60	89	63	79	49	66	33
22	57	14	49	21	37	1	23	12	19	3	64	26	42	13	61	35	87	58	88	62	85	60	65	49
23	61	19	44	28	4	− 7	27	14	33	13	59	25	25	11	62	40	76	39	88	61	81	58	74	22
24	62	26	31	0	47	0	26	12	35	16	28	10	32.5	5	70	39	90	56	80	60	81	49	56	29
25	63	31	29	2	47	28	30	3	39	2	41	3	42	18	62	46	91	52	72	55	80	48	82	39
26	61	33	30	9	32	13	37	16	20	− 8	57	27	55	23	65	38	94	52	80	45	88	52	64	31
27	61	23	43	8	44	17	− 8	−17	40	6	46	26	52	32	74	46	84	53	74	47	90	53	62	32
28	45	22	51	28	43	24	24	−17	38	16	48	23	60	28	81	45	84	49	77	48	80	60	50	28
29	34	13	60	20	51	24	41	8	.....	.....	60	32	46	25	64	43	85	46	79	45	86	50	66	30
30	47	24	56	37	22	2	44	16	.....	.....	50	20	28	20	76	43	69	49	77	53	83	54	62	31
31	48	27	.....	.....	26	2	12	− 5	.....	.....	45	21	.....	.....	65	40	.....	.....	85	49	81	56	.....	.....
Range	.....		76°		70		72		60		62		69°		56°		55°		50°		43°		55°	
Monthly means	45°.2		28°.2		23°.4		24°.6		25°		39°.7		34°.4		49°.2		69°.5		69°.7		69°.2		55°.9	

* Station supplied with a self registering maximum and minimum thermometer, October 20, 1872. † Observer sick. No observation taken.

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Maximum, minimum, and mean temperatures—Continued.

CHICAGO, ILL.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	56	42	52	33	33	17	30	19	20	0	34	10	43	29	50	38	62	44	78	61	87	64	70	68
2	70	48	49	39	38	26	44	26	19	−12	35	11	46	29	58	36	83	49	71	60	80	63	75	60
3	65	52	46	34	36	20	34	12	40	10	8	− 6	51	33	49	38	89	63	76	60	68	53	80	67
4	81	52	48	36	34	12	(*)	.....	42	23	23	−12	77	40	69	36	73	49	78	61	70	55	80	66
5	67	55	48	43	35	21	26	12	40	11	31	11	83	61	68	42	80	58	72	58	74	59	69	54
6	59	51	48	36	34	19	25	5	44	26	50	22	67	33	57	39	67	50	63	52	83	60	62	57
7	62	45	53	37	42	18	36	18	48	29	53	35	55	35	57	39	70	50	72	56	87	66	68	54
8	73	47	44	32	40	16	35	5	34	11	(*)	.....	40	28	55	43	72	56	.....	.....	75	65	67	55
9	69	47	49	33	16	6	7	− 8	46	8	41	29	45	32	55	40	81	61	68	51	74	63	72	59
10	48	31	59	40	22	4	10	− 7	41	20	54	29	56	32	57	42	72	54	68	52	70	60	80	60
11	51	28	53	37	27	16	(*)	.....	46	20	39	22	56	31	57	39	80	50	65	53	77	66	88	64
12	55	35	52	32	29	16	45	6	38	15	36	21	41	31	74	43	69	45	.....	.....	70	65	74	59
13	46	34	46	27	36	23	46	15	40	12	54	31	53	32	63	36	85	60	83	64	72	64	59	46
14	44	27	28	19	46	22	42	29	39	14	60	34	57	41	49	36	75	54	88	69	72	67	62	42
15	63	33	27	19	26	7	51	33	38	21	(*)	.....	58	37	45	36	79	53	84	64	77	61	75	42
16	48	42	30	17	26	14	35	2	38	25	45	26	58	34	51	38	(*)	.....	93	66	69	58	67	51
17	63	38	33	14	32	6	35	−4	42	24	53	32	41	31	50	38	85	56	90	71	72	56	84	57
18	57	37	25	11	32	14	22	11	52	28	53	31	48	32	64	39	87	57	76	54	75	60	79	52
19	60	39	26	17	25	5	28	5	53	22	53	27	45	35	57	43	91	57	76	50	87	61	59	41
20	75	46	22	9	25	5	35	22	40	17	32	21	57	36	60	49	75	59	68	56	87	67	57	43
21	74	51	32	15	8	−12	34	23	40	−11	39	20	48	32	60	50	86	63	71	63	85	72	68	50
22	55	42	34	27	14	−21	33	23	24	−14	51	26	39	29	77	50	86	62	82	60	90	67	65	57
23	52	37	41	27	14	−18	25	18	12	−18	40	25	38	25	80	58	92	71	85	62	75	68	59	48
24	48	38	51	35	5	−23	20	13	22	−11	30	24	41	30	67	48	87	59	88	66	92	68	63	53
25	50	46	46	27	20	4	23	10	(*)	− 3	35	19	48	30	60	49	75	57	84	68	80	70	66	48
26	52	41	39	25	21	8	20	8	.....	20	29	7	57	34	87	45	79	60	74	63	73	64	85	58
27	55	39	32	3	19	0	20	3	.....	12	38	1[illegible]	55	36	78	58	85	66	78	60	72	59	86	61
28	53	40	19	0	21	2	16	− 5	.....	13	49	36	51	36	82	54	78	61	81	64	73	65	75	67
29	60	48	14	− 2	28	15	18	−16	.....	.....	45	32	53	37	78	40	79	64	78	60	77	74	59	49
30	56	45	26	4	33	23	25	− 3	.....	.....	45	27	52	30	51	35	78	63	83	63	85	67	61	41
31	48	39	.....	.....	31	27	25	13	.....	.....	53	32	.....	.....	55	35	.....	.....	75	66	92	71	.....	.....
Range	54°		61°		69°		67°		71°		72°		58°		52°		48°		43°		39°		47°	
Monthly means	50°. 8		32°. 5		20°. 3		20°. 7		24°. 6		34°. 6		42°. 3		53°. 9		70°. 2		71°. 2		71°. 7		62°. 4	

* Instruments out of order.

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Maximum, minimum, and mean temperatures—Continued.

CINCINNATI, OHIO.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	62	46.5	58	39	41	25	40	31.5	34	22	41	25	65	45	72	47	82	55	88	69	88	73	89	76
2	71.5	43	.....	.....	50	40	55	36	33	11	35	27	52	40	67	52	84	58	87	70	89	73	82	66
3	81	59	51	42.5	46	36	45	31	53	28	30	6	70	40	60	49	89	63	91	72	82	67	86	67
4	85	64	54	36	45	29	45	26	56.5	43	19	1	78	50	67	48	86	70	93	70	79	63	85	73
5	83	66	55.5	50	42.5	36	37	23	50	31	34	8.5	85	67	72	48	84	69	92	70	83	63	81	68
6	80.5	61	54.5	43	49	30	37	20	56	33	54	22	84	71	77	60	88	68	78	64	87	66	76	59
7	67.5	54	64	36	52	32	45	23	56	32	63.5	42.5	78	60	66	59	85	69	83	64	89	69	74	60
8	69	48	54	39	48	29	40	20	40	26	59.5	43	78	56	71	61	83	62	83	67	90	73	74	55
9	73	49	55	39	22	20	23	10	35	18	62	39	60	43	74.5	55	85	64	83	67	88	74	76	57
10	58	46	61	36	32	15	12	3	48	29	61	34	62	41	70	54	78	69	86	66	89	70	84	64
11	55	39	61	53	32	15	34	11	48	33	61	34.5	56	44	65	48	80	64	83	66	91	72	87	63
12	57	35.5	51	36	33	16	50	23	44	26	54	29.5	48	38	79	45	82	63	86	65	90	71	86	66
13	55	43	57	40	42	20	53	29	36	25.5	54	32	60	42	71	57	82	63	89	71	82	67	73	58
14	50	36	42	31	50	28	45	36	42	29	64	39	67.5	43	70	52	80	(*)	90	72	77	63	66	48
15	61	34	36	27.5	46	30	63	41	45	29	72	46	62	52	68	47	88	.....	89	72	84	65	74	45
16	62.5	51.5	32	24.5	40	28	60	24	53	40	49	39	60	44	69	52	92	.....	94	72	75	70	78	59
17	70	52.5	38	22	38	18	25	15	46	39	62	34	54	43	70	52	87	.....	94	73	74	66	84	55
18	63	51	39.5	25	36	27	18	12	67	40	56	44	52	42	72	57	85	.....	88	75	83	66	86	64
19	63	43	41	30.5	39	24	27	12	61	39	60.5	40	64	42	81	58	89	.....	76	67	82	61	76	54
20	68	40	34	20	38	22	43	22	58	39	52	29	55	38	82	64	89	.....	83	60	85	61	62	46
21	70.5	45.5	44	20	23	— 1	47	33	54	18	38	28	59	40	78	65	91	66	81	62	86	64	69	47
22	64	52	38	35	22	— 8	42	31	29	14	51	33	57	39	85	66	91	68	85	64	88	69	62	54
23	64	46	54	31.5	21	2	45	31	16	3	60	40	48	35	88	68	95	73	88	65	90	69	60	53
24	59.5	41.5	57	36.5	15	1	37	16	29.5	2	50	38	50	36	89	70	94	74	90	65	92	72	69	50
25	62.5	50	56	39	27	— 1	31	11	39	20	44	36	47	35	81	66	88	75	91	70	93	73	72	60
26	59.5	52	45.5	33	24	10	33	22	39	29	31	24	59	39	87	68	92	74	81	72	87	71	82	56
27	61.5	44	36	27	26	6	28	20	40	22	45	21	65	44	83	69	88	74	82	72	81	69	85	66
28	62	44	39.5	21	29	9	18	9	37	24	65	35	60	51	80	65	88	71	84	71	78	66	86	68
29	64.5	44	21	6	35	23	23.5	2	.....	.....	50	38	64	50	82	62	89	70	86	73	78	70	77	56
30	64	44	31	10	43	26	26	1	.....	.....	50	37	65	47	76	55	84	71	89	71	86	66	64	48
31	59	47	.....	.....	48	37	42	15	.....	.....	64	41	.....	.....	75	47	.....	.....	87	74	92	68	.....	.....
Range	51°		58°		60°		62°		65°		71°		50°		44°		40°		34°		32°		44°	
Monthly means	56°.9		40°.4		29°.5		31°.1		35°.9		41°.9		53°.9		66°.5		77°.8		77°.6		76°.3		67°.6	

*Minimum thermometer broken.

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Maximum, minimum, and mean temperatures—Continued.

CLEVELAND, OHIO.

Day of month.	1872.						1873.																	
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	57	44	51	37	33	16	28	24	18	8	31	26	52	33	62	45	67	42	84	64	79	66	.....	.....
2	54	47	55	35	42	34	24	26	18	1	32	23	46	37	65	43	73	47	84	67	85	69	78	63
3	66	45	47	40	39	30	45	30	40	12	23	3	44	45	45	39	86	56	79	69	76	66	72	57
4	65	49	47	36	38	28	.....	.....	47	30	11	2	41	57	61	43	85	65	77	69	74	63	84	69
5	83	70	49	40	42	28	33	23	41	26	24	— 2	79	46	65	45	81	61	88	66	79	56	79	60
6	81	56	50	40	38	28	26	21	45	30	43	14	69	42	61	46	75	64	70	58	80	59	68	59
7	59	49	55	33	.....	.....	33	14	49	29	56	37	68	44	59	51	70	58	71	52	81	66	69	57
8	63	41	47	38	48	28	37	21	38	22	50	37	47	37	61	50	70	51	73	63	80	71	66	54
9	71	48	46	36	28	15	20	6	21	6	40	25	50	37	68	52	82	57	73	60	77	64	69	52
10	62	44	57	34	25	15	5	— 1	40	5	44	23	57	31	60	50	80	60	73	59	79	57	73	55
11	46	37	58	42	24	22	17	1	42	33	41	28	63	37	60	49	72	61	76	58	83	63	77	65
12	54	36	48	36	27	20	42	18	28	19	33	26	43	37	70	46	68	55	73	50	78	57	85	63
13	50	41	51	35	34	19	47	36	25	16	40	26	51	37	56	44	75	47	88	60	71	57	61	48
14	47	40	44	27	41	26	38	34	29	22	53	31	53	37	49	42	81	62	84	69	77	62	53	42
15	50	33	36	24	45	20	54	34	39	22	57	42	55	35	54	42	79	62	81	72	70	64	67	44
16	50	36	30	21	33	19	47	22	37	33	39	32	57	41	60	45	85	62	79	67	75	63	66	52
17	60	37	35	22	30	17	18	14	38	32	42	31	52	38	63	42	75	63	91	69	71	55	72	52
18	57	46	34	25	31	21	16	10	58	35	45	35	46	39	59	40	83	55	84	67	71	62	84	61
19	54	40	33	24	31	11	19	9	38	30	51	34	49	38	61	48	90	71	76	59	76	56	76	53
20	63	35	26	17	31	18	33	18	43	26	45	26	44	35	81	58	81	67	74	59	82	62	56	45
21	71	50	37	13	24	— 7	38	31	36	17	32	27	43	35	79	59	83	56	77	57	82	64	65	40
22	59	50	39	32	13	12	33	27	20	7	37	30	37	31	80	58	84	62	79	57	80	66	65	45
23	54	41	43	29	16	— 1	29	26	3	— 4	44	32	42	33	83	67	84	67	84	65	75	67	62	53
24	54	37	52	39	8	— 4	29	18	20	— 4	32	22	45	35	77	62	81	65	86	69	72	60	69	42
25	55	49	44	34	13	— 2	24	17	28	15	31	25	42	34	77	58	76	57	90	73	81	66	70	52
26	56	50	37	26	16	9	26	17	33	24	31	18	48	34	83	65	82	63	81	69	72	65	79	53
27	54	47	34	18	20	4	22	14	33	18	35	17	61	38	85	68	84	69	78	71	70	58	81	62
28	54	45	28	15	21	10	17	2	29	19	57	26	59	43	74	66	.....	.....	77	69	76	65	86	61
29	59	40	21	11	23	15	10	—17	.....	.....	50	33	50	43	82	57	82	64	83	60	77	61	78	56
30	59	39	24	13	32	20	24	4	.....	.....	46	32	52	34	50	47	73	66	79	64	80	65	63	46
31	53	41	.....	.....	32	27	28	18	.....	.....	46	33	.....	.....	59	45	.....	.....	79	67	86	66	.....	.....
Range	50°		47°		66°		71°		62°		59°		48°		46°		48°		41°		31°		46°	
Monthly means	52°		35°.8		21°.9		24°		26°.9		32°.9		44°.8		57°.3		70°.2		71°.9		70°.6		63°.2	

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Maximum, minimum, and mean temperatures—Continued.

DENVER, COLO.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	85	(*)	53	.....	56	39	41	16	29	3	40	21	61	25	58	33	76	44	75	47	78	50	80	56
2	84	.....	62	.....	43	23	37	21	59	10	44	15	70	41	63	30	77	48	84	53	89	56	88	51
3	80	.....	56	.....	59	22	32	8	45	30	55	20	75	44	61	35	73	48	93	52	94	54	84	55
4	61	.....	42	.....	50	28	31	15	40	18	61	23	65	32	60	38	80	45	94	56	92	63	72	50
5	64	.....	40	.....	43	26	47	13	43	15	67	30	37	25	67	35	86	42	97	59	92	60	72	52
6	72	.....	63	.....	42	25	48	24	60	25	67	34	32	18	60	40	87	52	97	62	86	59	62	51
7	80	.....	63	.....	51	21	51	19	49	27	51	29	30	12	57	37	79	52	85	58	88	59	69	51
8	80	.....	65	.....	49	25	32	13	51	14	58	24	40	10	48	27	69	48	90	59	88	57	79	49
9	57	.....	57	.....	46	23	30	12	59	13	57	34	52	21	50	30	66	50	82	61	87	60	84	49
10	66	.....	36	.....	35	19	56	13	46	24	64	39	54	30	68	30	75	48	82	58	86	56	85	50
11	78	.....	36	.....	28	6	62	31	55	15	67	45	68	31	74	33	84	50	87	61	93	58	80	52
12	70	.....	53	.....	49	3	54	32	44	30	68	41	72	34	80	41	82	51	93	58	94	58	77	48
13	70	.....	23	.....	53	17	53	27	48	21	72	38	50	28	78	46	88	51	97	58	95	59	78	46
14	79	.....	17	.....	32	22	41	24	31	24	68	39	40	17	68	48	80	55	94	54	87	63	88	50
15	68	.....	25	.....	34	9	36	11	52	12	60	25	50	18	62	45	87	55	99	65	71	53	83	52
16	71	.....	37	8	40	5	47	17	56	19	66	26	50	27	54	40	92	54	78	60	79	56	87	47
17	75	.....	29	13	35	5	51	30	47	23	53	29	65	24	62	42	91	56	84	56	84	54	86	57
18	80	.....	54	16	27	3	55	24	33	11	68	23	65	37	58	38	99	58	96	56	88	55	70	38
19	79	.....	51	29	21	— 5	56	35	48	8	59	33	73	40	76	36	86	57	87	52	88	56	73	42
20	74	.....	52	27	15	— 1	55	41	35	13	65	25	73	36	69	43	93	68	94	53	87	55	75	44
21	56	.....	42	25	28	— 8	54	32	46	27	70	32	81	43	65	46	94	57	95	61	86	51	74	40
22	57	.....	52	19	52	13	37	18	37	11	73	36	63	23	73	43	94	60	92	63	90	63	74	37
23	62	.....	60	25	15	3	35	19	40	8	69	25	28	17	67	46	87	49	94	65	84	60	81	38
24	65	.....	35	15	55	2	34	17	34	18	50	19	30	15	76	47	94	54	87	61	82	53	68	40
25	65	.....	44	7	55	40	35	8	41	13	45	11	38	22	68	46	96	54	80	59	91	50	80	45
36	66	.....	45	16	41	22	42	15	35	7	67	22	58	31	68	44	96	58	89	51	94	55	71	40
27	67	.....	49	10	50	20	30	— 6	46	10	63	36	59	39	75	44	95	54	80	53	96	56	67	35
28	48	.....	56	22	50	20	23	—17	40	15	56	34	66	29	84	48	95	53	79	53	82	65	52	34
29	38	.....	64	21	54	22	59	1	.....	.....	70	33	53	33	79	52	85	61	86	52	86	55	64	28
30	53	.....	66	42	31	21	52	19	.....	.....	64	26	38	30	84	52	76	54	89	58	86	55	71	33
31	51	.....	.....	.....	25	13	35	6	.....	.....	48	35	.....	.....	67	47	.....	.....	87	42	86	55	.....	.....
Range	.....		.....		67°		79°		57°		64°		71°		57°		57°		57°		46°		62°	
Monthly means	50°		32°.5		27°.6		30°		30°.3		44°		39°.8		53°.3		66°.9		71°.5		70°.8		59°.8	

* Minimum thermometer broken.

Digitized by Google

Maximum, minimum, and mean temperatures—Continued.

FORT BENTON, MONT.

Day of month.	1872.						1873.																	
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	(*)	45	.....	24	.....	26	.....	−15	.....	−33	.....	−18	.....	28	.....	28	.....	38	.....	58	.....	54	.....	48
2	.....	39	.....	28	.....	12	.....	5	.....	−16	.....	−20	.....	33	.....	37	.....	47	.....	53	.....	48	.....	56
3	.....	45	.....	31	.....	22	.....	−16	.....	3	.....	20	.....	30	.....	43	.....	42	.....	54	.....	53	.....	52
4	.....	32	.....	26	.....	24	.....	−17	.....	3	.....	22	.....	26	.....	38	.....	46	.....	48	.....	61	.....	46
5	.....	40	.....	17	.....	15	.....	27	.....	9	.....	30	.....	22	.....	45	.....	54	.....	53	.....	54	.....	49
6	.....	40	.....	30	.....	22	.....	8	.....	30	.....	24	.....	21	.....	35	.....	52	.....	54	.....	60	.....	37
7	.....	42	.....	30	.....	28	.....	−23	.....	27	.....	21	.....	22	.....	38	.....	45	.....	61	.....	56	.....	37
8	.....	33	.....	29	.....	20	.....	−26	.....	15	.....	23	.....	31	.....	28	.....	46	.....	57	.....	56	.....	45
9	.....	25	.....	17	.....	18	.....	−26	.....	25	.....	22	.....	33	.....	27	.....	34	.....	64	.....	45	.....	51
10	.....	17	.....	9	.....	15	.....	1	.....	14	.....	27	.....	37	.....	38	.....	48	.....	59	.....	50	.....	50
11	.....	29	.....	1	.....	4	.....	41	.....	20	.....	19	.....	34	.....	35	.....	62	.....	51	.....	69	.....	50
12	.....	34	.....	6	.....	16	.....	15	.....	30	.....	31	.....	37	.....	47	.....	47	.....	57	.....	64	.....	36
13	.....	28	.....	6	.....	−1	.....	15	.....	22	.....	28	.....	28	.....	38	.....	47	.....	46	.....	57	.....	34
14	.....	34	.....	−6	.....	−21	.....	10	.....	15	.....	19	.....	18	.....	40	.....	54	.....	46	.....	53	.....	53
15	.....	37	.....	−16	.....	−25	.....	7	.....	31	.....	26	.....	20	.....	36	.....	43	.....	57	.....	48	.....	41
16	.....	40	.....	−9	.....	−20	.....	12	.....	21	.....	27	.....	27	.....	36	.....	58	.....	55	.....	53	.....	50
17	.....	32	.....	−18	.....	−11	.....	21	.....	3	.....	28	.....	38	.....	35	.....	57	.....	48	.....	52	.....	41
18	.....	42	.....	30	.....	−37	.....	34	.....	−13	.....	30	.....	37	.....	39	.....	39	.....	56	.....	57	.....	19
19	.....	39	.....	30	.....	−16	.....	20	.....	−14	.....	26	.....	43	.....	44	.....	55	.....	55	.....	67	.....	46
20	.....	34	.....	34	.....	−35	.....	33	.....	−16	.....	36	.....	37	.....	44	.....	50	.....	63	.....	53	.....	43
21	.....	22	.....	29	.....	−39	.....	30	.....	2	.....	30	.....	32	.....	40	.....	51	.....	61	.....	52	.....	38
22	.....	17	.....	26	.....	−24	.....	22	.....	−14	.....	11	.....	14	.....	45	.....	48	.....	46	.....	47	.....	46
23	.....	22	.....	14	.....	−25	.....	14	.....	−4	.....	9	.....	14	.....	48	.....	45	.....	53	.....	55	.....	35
24	.....	25	.....	0	.....	−10	.....	−11	.....	−3	.....	6	.....	19	.....	44	.....	41	.....	54	.....	46	.....	32
25	.....	35	.....	−2	.....	−13	.....	−11	.....	−7	.....	−2	.....	22	.....	40	.....	51	.....	55	.....	53	.....	29
26	.....	25	.....	−18	.....	−18	.....	−15	.....	−20	.....	27	.....	34	.....	43	.....	53	.....	60	.....	50	.....	25
27	.....	34	.....	−15	.....	−15	.....	−26	.....	−34	.....	32	.....	24	.....	42	.....	52	.....	56	.....	50	.....	23
28	.....	34	.....	−12	.....	14	.....	−35	.....	−15	.....	27	.....	28	.....	42	.....	52	.....	61	.....	51	.....	12
29	.....	26	.....	7	.....	−12	.....	−1	.....	.....	.....	31	.....	27	.....	36	.....	58	.....	57	.....	39	.....	25
30	.....	20	.....	38	.....	−23	.....	−23	.....	.....	.....	29	.....	24	.....	35	.....	57	.....	55	.....	53	.....	25
31	.....	16	.....	.....	.....	−23	.....	−29	.....	.....	.....	34	.....	.....	.....	38	.....	.....	.....	54	.....	47	.....	.....
Range																								
Monthly means	47°.2		24°.3		11°.3		10°.5		18°.4		36°.4		40°.7		52°.4		64°.1		69°.8		60°.3		53°.2	

* No maximum thermometer at this station.

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Maximum, minimum, and mean temperatures—Continued.

FORT GARRY, MONT.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	x.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	.....	.....	.....	.....	.....	.....	12	7	− 6	−32	3	− 5	40	30	72	27	67	57	76	43	72	52	74	44
2	.....	.....	.....	.....	.....	.....	24	11	5	−16	− 5	−28	40	33	74	34	76	50	79	55	77	47	76	44
3	.....	.....	.....	.....	.....	.....	12	− 2	12	−15	0	−36	43	28	74	42	75	49	79	52	81	46	72	53
4	.....	.....	.....	.....	.....	.....	− 1	−20	1	−23	15	−16	40	30	65	31	77	46	72	49	87	59	66	42
5	.....	.....	.....	.....	.....	.....	− 6	−31	22	− 9	28	7	39	22	74	34	75	48	76	40	91	68	65	33
6	.....	.....	.....	.....	.....	.....	15	10	26	10	31	22	34	28	72	50	83	47	78	41	77	*54	64	37
7	.....	.....	.....	.....	.....	.....	10	− 8	6	0	25	5	29	22	55	36	74	57	71	46	76	53	68	35
8	.....	.....	.....	.....	− 1*	−21	− 8	−19	1	−21	18	−11	40	18	48	30	72	52	78	39	94	64	75	39
9	.....	.....	.....	.....	0	− 4	−10	−24	17	1	25	6	44	20	45	30	71	45	79	49	81	51	76	44
10	.....	.....	.....	.....	4	−15	− 5	−22	17	− 2	28	10	35	24	68	28	71	45	78	35	85	51	77	49
11	.....	.....	.....	.....	12	−20	10	− 6	3	−13	11	− 2	42	18	58	30	73	52	83	44	90	51	65	41
12	.....	.....	.....	.....	17	− 9	18	9	12	−10	22	− 3	52	34	44	30	70	42	85	61	87	55	50	35
13	.....	.....	.....	.....	− 2	−17	10	− 5	19	8	34	8	50	33	58	22	74	50	78	50	83	62	61	28
14	.....	.....	.....	.....	−10	−14	15	−14	21	14	36	21	32	20	61	30	83	47	73	46	76	59	68	38
15	.....	.....	.....	.....	− 6	−26	15	−19	30	13	31	15	34	16	69	36	82	52	83	44	74	51	65	30.5
16	.....	.....	.....	.....	− 5	−32	−14	−27	33	8	34	− 1	42	21	75	40	83	49	77	63	76	49	59.5	26
17	.....	.....	.....	.....	−21	−36	0	−21	31	9	36	26	60	24	71	43	88	66	66	57	78.5	47	49	34
18	.....	.....	.....	.....	−10	−34	13	0	10	− 1	26	2	41	28	.....	.....	90	57	76	48	76	54	51	23.5
19	.....	.....	.....	.....	+11	−33	21	5	6	− 7	7	− 9	46	22	.....	.....	76	51	82	51	78	50.5	65.5	21
20	.....	.....	.....	.....	−20	−31	21	5	−15	−30	13	− 3	39	19	.....	.....	81	44	94	51	75	56.5	52	29
21	.....	.....	.....	.....	− 8	−38	6	−10	−15	−36	27	− 7	31	16	.....	.....	75	55	93	58	68	40.5	65	38
22	.....	.....	.....	.....	−22	−35	− 7	−25	− 1	−29	20	− 4	35	20	.....	.....	76	59	76	58	73	37	60	35
23	.....	.....	.....	.....	−25	−35	− 3	−31	11	− 5	4	−18	32	22	.....	.....	76	53	87	44	69	52	62	29
24	.....	.....	.....	.....	−20	−41	4	−15	14	3	2	−13	49	21	.....	.....	83	48	89	62	72	50	50	35.5
25	.....	.....	.....	.....	−16	−26	2	−14	22	0	5	−20	47	24	68	52	67	63	78	48	75	43	54	34
26	.....	.....	.....	.....	−20	−32	−17	−28	28	20	17	−15	47	21	75	54	83	66	80	54	76	48	46	34
27	.....	.....	.....	.....	−13	−35	−20	−31	23	6	32	10	56	23	59	45	77	54	82	45	83	54	46	31
28	.....	.....	.....	.....	4	−21	− 9	−33	0	−15	26	16	55	22	57	43	80	50	76	50	77	57	39	31
29	.....	.....	.....	.....	6	−25	15	−10	.....	.....	31	1	65	30	63	34	77	56	72	42	73	48	42	20
30	.....	.....	.....	.....	10	−11	− 4	−22	.....	.....	38	17	58	36	76	38	73	51	77	47	76	38	38.5	25
31	.....	.....	.....	.....	10	−11	−21	−35	.....	.....	45	11	.....	.....	74	39	.....	.....	72	52	76	47	.....	.....
Range	.....	.....	.....	.....	58°		59°		69°		81°		49°		54°		48°		59°		57°		57°	
Monthly means	.....	.....	.....	.....	.....		.....		.....		.....		.....		.....		.....		.....		.....		.....	

* No reports received from this station previous to December 8, 1872.

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Maximum, minimum, and mean temperatures—Continued.

FORT SULLY, DAK.

Day of month.	1872.						1873.																	
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	85	43	45	28	47	35	16	− 1	− 5	−25	15	− 7	62	31	58	42	81	56	86	52	68	58.5	92	53
2	92	44	40	27	40	29	25	− 9	3.5	−21.5	10	− 6	59	39	75	36	78	54	93	64	85	52	95	67.5
3	83	45	45	31.5	39	19	19	− 1	28	−11	16	−12	69	41	74	40	80	56	100	63	91	59.5	88	61
4	67.5	53	39	32.5	39	25	16	− 6	25	2	49	12	55	33.5	59.5	52	94	55.5	85.5	64	96	66.5	75.5	52.5
5	72	47	44	31.5	44	25	22	−13.5	36	14	51	26	41	33	75.5	50	98	62.5	77	58	102	73	71	43
6	72	38	63	31.5	48	18	44	6.5	45	23	65	36.5	35	30	60	51	102	66	85.5	54	97	63	68	50
7	85	45	53	35	51	34	41	− 5	39	25	51	28	32	25	64.5	44	88.5	63	85	61	97	62	75.5	38
8	72	48	60.5	30	41	6	2.5	−12	40	20	54	36	39	23	59	37	71	59	87	58	100	69.5	87	57
9	49	31	59	35	24	2.5	3.5	−17	41	16	55	29	50	18	56.5	34	73	51	79	60	89	63	91.5	55
10	63	21.5	36	20.5	35	10	17	−17	36	23	50	34	48	29	63.5	40	77	49	83.5	60	92.5	68.5	100	55
11	70	25.5	31	20	28	8	33.5	− 3	27	11	41	26	62	25	74	43.5	91	57	93	63	84	66	85	59
12	65	45	26	10.5	40	7	43	19.5	24	10.5	63	27	81	40	63	51	88	66	101.5	65	91	68	60	43
13	57	40	19	3	34	17	28	7	28	12	59	38.5	63	40	53	37.5	98	61	85.5	63	107.5	72	75.5	34
14	60	36	20	13	19.5	− 4.5	22	10.5	34	16	52.5	35	43	30	69	34	89	60	91	61	92	65.5	89.5	52
15	62	38	25.5	16	17	−10	20	− 3	43	19.5	42	30	38.5	25	66.5	36	102	59	108.5	73	78.5	57	74.5	53
16	73	31	39	14.5	29	− 8	11.5	−12	40	26	60.5	26	46	24	67	45	98	65	88.5	72.5	87.5	51	90	45
17	70	42	17	2.5	17	5	13	− 4	30	15	55	28	67	24	56	46	102.5	71	81	61	94	59	81.5	56
18	80	35.5	38	12	− 1	−19	41	10	20	8	58	32	56	33	57	46	100	68.5	76.5	55.5	101.5	63.5	57	36
19	.....	.....	27	5	5	−18	41.5	35	33	2	47	25	73	33	66	48	92	59	89	54	104	60.5	67	27
20	69	40	37	1	− 4	−22	45	35	− 2	−17	50	16	70	32	69	49	103	64	101	61.5	95	64	70	42
21	54	36.5	38	24	11	−30	37	19	0	−10	50	29	56	26	73	45	105	69	106	69.5	81.5	54	63	44
22	65	24.5	47	28	7	−22	19	− 4	0	−20	40	16	36	18	65	46	95	63	94	73	83.5	53	68	32
23	74	36.5	34	22	−14	−26	6	− 9	12	− 9.5	32	8	39	25	66	50.5	83.5	54.5	101	62	89	68	65.5	41.5
24	73	45.5	33	16	10	−23	5.5	−14	9	− 3.5	26	1	43	25	60.5	45.5	92.5	56	89.5	69.5	94	58.5	50	39
25	70	45	36	6	11	−20	8	− 2	18.5	− 3	22	− 7.5	65	29	72	49.5	108	72	85	64	89	62	77	35
26	64	44	23	− 5	− 5	−22	4.5	−10	17	4	46	5	67	27	68	51	95	71	85.5	57.7	89	60	55	41
27	68	34	6	−11	11	−12	− 2	−20	14.5	− 2	46	26	72	40	86	48.5	92	65	79	60	104	69	51	35
28	57	37	0	−10	23	− 4	5	−28	18	− 9	49.5	33	69	34	80	53	83.5	58	90.5	60	90.5	66	46.5	32
29	45	31	14	−15	20	− 2	41.5	−10.5	.....	.....	71	24.5	50	42.5	60	51	82	56	99	60	93	54	60	25
30	45	33	46	10	17	2	35	− 8	.....	.....	76	32	59	44	57	42.5	77	62	83.5	57	88.5	67	58.5	37
31	54	32	.....	.....	13.5	−18.5	− 6.5	−20	.....	.....	50	34	.....	.....	57	54	.....	.....	94	61	83	60.5	.....	.....
Range	70°.5		78°		81°		73°		70°		83°		63°		52°		59°		56°.5		56°.5		75°	
Monthly means	52°.3		24°.5		11°.5		9°.6		14°.7		32°.4		41°.5		54°.5		74°.2		74°.3		75°.5		57°.3	

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Maximum, minimum, and mean temperatures—Continued.

GENEVA, N. Y., (HOBART COLLEGE OBSERVATORY.)

Day of month.	1872.						1873.																	
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	.....	.....	53.5	35	26.5	22.5	.....	.....	19	5.5	40	9.5	49	31	70	36	77	32	.....	.....	.....	.....	.....	.....
2	.....	.....	52	42	41.5	24.5	.....	.....	14	1	36	26	53	39	55	44	75	43	.....	.....	.....	.....	.....	.....
3	.....	.....	49.5	42.5	36	31.5	.....	.....	34	22	26	6	46	33	42	38	82	60	.....	.....	.....	.....	.....	.....
4	.....	.....	49	38	33	28	.....	.....	48	32	10	5	46	35	65	35	88	52	.....	.....	.....	.....	.....	.....
5	.....	.....	50	34	35.5	27.5	.....	.....	32	22	27	5	50	35	60	38	82	58	.....	.....	.....	.....	.....	.....
6	.....	.....	55	47	33.5	27.5	.....	.....	49	25	37	4	53	35	62	32	78	57	.....	.....	.....	.....	.....	.....
7	.....	.....	50	39	37.5	24	.....	.....	43	21	50	28	64	42	65	35	65	49	.....	.....	.....	.....	.....	.....
8	.....	.....	47	41	40	34	.....	.....	47	22	51	31	55	37	52	43	75	47	.....	.....	.....	.....	.....	.....
9	.....	.....	46	40	19	10.5	.....	.....	33	6	35	20	59	38	62	42	82	42	.....	.....	.....	.....	.....	.....
10	.....	.....	49	40.5	20.5	12.5	.....	.....	25	5	40	20	55	36	66	54	84	51	.....	.....	.....	.....	.....	.....
11	.....	.....	54	43	26	16.5	.....	.....	44	23	44	29	60	34	60	43	73	55	.....	.....	.....	.....	.....	.....
12	.....	.....	47	37	22.5	12	24.5	5	32	11	37	24	49	39	66	41	63	44	.....	.....	.....	.....	.....	.....
13	.....	.....	46	35	29.5	25	38	26	14	5	43	28	52	38.5	62	38	77	40	.....	.....	.....	.....	.....	.....
14	.....	.....	46	37	36	30.5	36	19	28	5	46	30	50	37	55	33	76	53	.....	.....	.....	.....	.....	.....
15	.....	.....	39	29	35.5	20	35.5	19	33	20	45	39	50	39	60	35.5	(†)	.....	.....	.....	.....	.....	63	58
16	.....	.....	35	27	29	20	48.5	34	36	27	47	19	58	33	63	43	.....	.....	.....	.....	.....	.....	62	53
17	.....	.....	37	27	.....	16	27	13.5	34	17	39	27	45	37	68	48	.....	.....	.....	.....	.....	.....	66	38
18	.....	.....	38	30	26	18	16	10.5	41	17	39	28	47	35	65	42	.....	.....	.....	.....	.....	.....	79	47
19	.....	.....	37.5	28	30	22.5	15	19	47	32.5	43	32	46	36	64.5	37	.....	.....	.....	.....	.....	.....	73	43
20	.....	.....	32	24	31	24	25.5	18	33	21	41	32	40	32	70	40	.....	.....	.....	.....	.....	.....	60	45
21	.....	.....	35.5	24	26	15	36	25	33	14	35	25	45	30	56	47	.....	.....	.....	.....	.....	.....	62	45
22	.....	.....	38	34	7	−7.5	33	25	15	9	35	27	43	32	72	46	.....	.....	.....	.....	.....	.....	65	43
23	.....	.....	42.5	35	9.5	2	17	12	9	−3	47	22	45	28	75	52	.....	.....	.....	.....	.....	.....	65	48
24	.....	.....	45.5	36.5	5.5	1	20	13	18	−4	28	12	45.5	32	74	55	.....	.....	.....	.....	.....	.....	70	48
25	.....	.....	47.5	32	6	4	17	1	29	11	34	16.5	48	30.5	77	52	.....	.....	.....	.....	.....	.....	70	48
26	.....	.....	37	31.5	5.5	5	28	16	35	21	37	20	47	33	85	48	.....	.....	.....	.....	.....	.....	70	48
27	.....	.....	35.5	22	12.5	−3.5	26	23	36	22	33	10	53.5	32	82	61	.....	.....	.....	.....	.....	.....	88	48
28	.....	.....	33	15	17	7	20	0	31	15	43.5	8	58	33	77	62	.....	.....	.....	.....	.....	.....	84	65
29	.....	.....	22	13	.....	.....	10	−6	.....	.....	44	34	61	33	79	52	.....	.....	.....	.....	.....	.....	77	51
30	*57	34	22.5	14.5	.....	.....	23	−5	.....	.....	40	30	63	39	57	39	.....	.....	.....	.....	.....	.....	56	36
31	54	32.5	.....	.....	.....	.....	21	11	.....	.....	46	31	.....	.....	70	33	.....	.....	.....	.....	.....	.....	.....	.....
Range	.....	.....	42°		45°		.....	.....	53°		47°		36°		53°		.....	.....	.....	.....	.....	.....	.....	.....
Monthly means	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

* First reports received from this station October 30, 1872.
† No reports received since June 14, 1873.

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Maximum, minimum, and mean temperatures—Continued.

HALIFAX, N. S.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1									25	7	31	21	38	30	65	28	67	41	78	57	69	61	70	55
2									10	−11	37	15	41	28	62	36	62	37	68	56	81	62	75	55
3									32	−12	31	20	54	32	38	30	55	37	85	36	85	62	66.5	48.5
4							(*)		38	31	20	13	53	33	45	24	71	35	85	57	85	57	71	46
5							35	19	41	14	36	4	47	28	43	26	53	41	70	57	73	51	68	60
6							49	23	34	8	40	9	47	24	58	30	57	45	64	57	74	47	76	49
7							25	14	40	26	42	24	49	30	55	27	54	45	80	55	68	50	71	42
8							28	6	43	30	45	28	39	34	62	27	63	44	76	49	83	59	68	46
9							38	20	39	27	44	28	46	29	72	32	53	44	62	52	84	54	69	45
10							33	21	28	7	34	21	39	31	53	26	55	45	82	59	79	51	67	41
11							26	3	27	2	44	21	56	33	47	40	55	46	68	56	76	48	67	50
12							10	−2	32	8	45	31	47	30	52	43	72	48	75	54	81	49	76	53
13							27	4	17	−1	43	25	36	33	68	43	75	43	78	44	81	49	65	50
14							41	24	20	−8	39	21	44	33	60	39	68	42	83	53	77	49	70	58
15							24	7	26	−1	38	21	43	32	51	36	64	47	86	57	75	58	65	43
16							48	10	34	5	36	21	45	29	62	36	81	49	74	53	80	67	62.5	34.5
17							52	45	34	22	33	24	57	25	51	39	67	46	70	46	82	54	67	41
18							45	26	23	1	34	23	41	27	60	37	70	47	65	42	82	50	68	39
19							38	33	32	0	32	24	36	33	58	37	56	48	65	43	72	55	59	56.5
20							34	27	35	14	36	23	48	33	56	35	68	45	78	53	73	61	77	47
21							36	28	34	14	35	29	54	34	70	32	60	49	78	53	76	57	63.5	40
22							41	28	38	23	39	28	47	32	64	36	63	45	86	55	73	56	61	39.5
23							30	10	29	20	37	23	51	33	72	45	82	46	85	57	75	59	62	50.5
24							27	1	26	9	37	17	55	36	75	46	76	56	87	56	62	56	60	55
25							36	21	30	5	35	15	60	32	67	43	78	47	81	54	64	50	65	51
26							27	18	29	15	37	30	38	32	78	45	84	47	81	57	61	48	64	48
27							30	20	36	14	44	27	63	34	78	48	86	53	80	57	65	46	73	44
28							29	17	33	14	43	21	60	32	73	46	77	50	84	58	80	44	85	53
29							21	− 6	.....	.....	48	29	59	28	82	48	86	55	65	56	87	46	71	54
30							11	−14	.....	.....	43	33	51	30	76	44	80	55	75	58	74	53	63	45
31							36	2	.....	.....	48	34	.....	.....	70	39	.....	.....	88	61	83	59	.....	.....
Range							66°		55°		44°		39°		56°		51°		46°		41°		46°.5	
Monthly means																								

* No reports received from this station previous to January 5, 1873.

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Maximum, minimum, and mean temperatures—Continued.

INDIANOLA, TEX.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	81	70	70	57	73	60	68	59	54	45	75	60	76	66	78.5	62	85.5	76	90	79.5	92.5	78	90	77
2	81	68	69	60	72	60	63	45	53	41	65	45	72.5	63	76	61	88	76	92	80	93.5	78	90	76.5
3	83	70	70	61	68	58	63	51	65	44	53	42	83	69	74	63	90	76	94	78	93.5	77.5	90	79
4	82	73	84	68	66	61	65	50	73	52	57	48	81	71	70	55	88.5	74	94	78.5	92.5	76	91	79
5	83	70	73	66	67	62	58	50	74	57	63	54	82	70	78	65	88.5	75.5	90	76.5	60	79	92.5	78.5
6	77	68	73	52	64	61	54	43	64	55	68	33	80	69	78	65	91	78.5	91.5	78.5	80.5	79.5	91	78.5
7	78	66	57	49	65	60	66	50	67	51	78	60	79	48	83.5	64	87	67	93	78	89.5	79.5	87.5	76.5
8	76	67	58	49	67	57	61	47	63	50	76	62	56	43	84	66	90	76	94	77	90.5	77.5	83.5	67.5
9	81	67	62	54	61	56	57	45	60	48	77	62	69	40	75	61	91	77	95	76	85.5	76	78.5	70.5
10	83	69	77	55	47	41	54	42	72	58	76	63	73	53	77	63	86	77	92.5	77.5	88.5	76	81	74
11	74	57	75	64	42	35	67	46	71	52	79	64	78.5	59	79	66	88	76.5	93.5	78	80.5	77.5	87.5	78.5
12	72	57	69	58	46	32	74	56	71	42	72	64	71.5	61	74	68	88	77.5	93.5	78.5	87.5	77.5	86	76
13	77	57	76	55	55	41	73	57	70	52	73	63	74.5	67	83	72	93	78	94	79.5	93	78.5	84.5	69
14	76	63	51	30	67	56	73	58	70	58	77	64	81.5	58	86	73	90.5	79	93.5	78	94	79	79	70
15	72	65	45	32	68	44	66	47	70	57	80	65	67	54	87	72	91.5	76.5	89	78	96.5	78.5	80.5	71.5
16	83	67	49	34	47	42	51	38	70	48	72	64	73.5	45	79	72.5	88	71	85.5	76	94	78.5	83	71.5
17	82	69	46	40	48	38	51	38	71	57	76	63	74	57	85	74	86	73	85	75	86.5	78	84.5	71
18	79	67	50	35	56	43	54	35	76	57	76	68	77	59	84	73	89	74	87	74	85.5	76	85	72
19	77	65	61	33	59	46	70	46	78	62	80	67	77	67	85	73.5	89.5	79.5	81	72.5	85.5	76.5	87.5	71.5
20	78	66	60	38	48	36	70	56	78	66	71	66	80	63.5	86	74	89	79	79	72.5	86.5	75	83.5	77
21	78	65	73	50	52	37	63	53	62	49	72	58	87	62	85.5	74	89	80	83	72	90.5	77	84.5	79
22	79	67	58	45	46	32	71	53	64	53	73	61	78	67	87.5	75.5	89	79.5	83	74	86.5	77.5	91	77.5
23	77	58	72	46	51	42	59	42	57	41	77	57.5	72	62	86.5	77	88	80	85.5	72	84.5	74.5	81	74.5
24	72	57	78	64	33	26	55	37	73	50	77	64	66	52	87	76.5	91	78	86	73	87.5	79	89	75
25	69	59	73	61	41	21	70	49	76	61	68	48	66	49.5	87	76	89	77	88	77	85.5	72.5	83.5	75.5
26	75	64	64	53	46	32	51	37	74	64	55	35.5	68	56.5	83.5	67.5	90.5	77	89	78	85.5	75.5	84	72.5
27	84	69	63	42	38	22	57	37	62	52	67.5	48	81	67	87	66.5	93.5	77	91	78	88	77.5	86.5	79.5
28	83	74	59	41	43	31	52	19	65	59	81	63	80	70	81	70	96.5	74	88.5	76.5	88	77	88.5	79.5
29	73	54	58	43	60	41	29	15	.....	.....	73.5	62	82	71	87.5	76	97.5	77.5	91.5	78	83.5	72.5	85.5	74.5
30	70	53	69	47	71	53	43	25	.....	.....	80	65	83.5	66.5	86.5	73	91	79	90	80	80	72.5	76.5	67
31	67	58	.....	.....	66	51	54	38	.....	.....	80	67	.....	.....	84	76	.....	.....	91	78	90	77.5	.....	.....
Range	31°		51°		52°		59°		37°		45°.5		47°		33°.5		30°.5		23°		24°		25°.5	
Monthly means	71°.5		57°.5		50°.3		51°.5		60°.3		65°.3		67°.6		75°.5		82°.3		82°.2		82°.1		79°.8	

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Maximum, minimum, and mean temperatures—Continued.

KEOKUK, IOWA.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	69	47	60	42	47	15	30	19	18	− 4	32	23	43	35	69	49	78	49	73	65	92	73	84	69
2	80	54	43	35	49	22	35	25	19	−11	25	9	58	33	52	45	86	64	80	65	81	67	84	61
3	84	60	46	34	41	27	26	19	42	18	18	− 1	71	44	60	43	86	68	87	70	77	57	80	66
4	85	61	53	38	44	22	29	8	36	22	25	− 2	83	62	67	44	74	65	91	69	79	56	78	65
5	72	53	45	39	43	21	25	8	49	23	46	19	83	62	69	49	83	61	.....	.....	82	59	75	60
6	67	50	55	35	41	23	28	− 7	49	26	61	36	65	52	73	55	88	67	80	67	88	63	65	55
7	68	50	59	42	49	24	44	15	45	35	58	42	45	38	60	52	87	72	72	66	90	70	67	54
8	77	50	49	35	39	14	14	4	35	21	61	33	36	32	63	54	80	70	78	65	94	73	71	51
9	69	47	59	33	21	4	6	− 7	46	12	50	38	42	32	58	45	84	65	82	63	95	73	76	53
10	55	33	60	42	30	8	15	−11	46	38	60	36	52	36	61	47	77	63	76	64	93	73	82	59
11	56	34	50	30	27	16	37	5	40	21	43	31	44	36	64	44	80	59	75	60	94	75	87	68
12	66	44	53	36	30	21	47	32	25	14	45	22	57	34	80	50	84	60	80	58	85	72	73	57
13	53	39	35	21	42	21	36	27	27	18	65	37	66	43	70	50	85	70	92	74	87	69	57	47
14	51	27	32	19	44	18	34	21	36	19	72	39	53	44	61	46	90	70	93	80	84	63	65	45
15	71	38	26.5	19	22	2	41	27	37	26	62	40	43	37	59	43	93	76	96	79	83	68	79	58
16	61	39.5	33	19	21	10	27	− 4	45	26	52	30	46	36	65	46	91	78	95	80	79	60	73	48
17	66	39	34	11	32	7	10	−10	47	31	62	35	45	38	62	50	89	74	87	76	82	59	86	62
18	67.5	37.5	29	9	27	15	16	0	49	29	55	40	58	41	67	53	90	69	77	65	88	64	73	48
19	72.5	44	29	14	12	2	32	8	35	22	59	33	59	40	73	53	94	75	78	56	93	69	60	40
20	70	51	27	6	17	− 1	39	26	32	9	36	18	57	44	76	53	86	66	83	66	92	71	64	43
21	73	49	39	25	0	−11	53	26	22	0	43	23	69	39	78	59	91	69	82	61	92	69	72	50
22	57	42	46	26	20	−10	35	24	10	− 3	54	27	47	33	86	66	89	72	87	69	94	68	67	56
23	62	37	59	36	− 6	−12	26	13	13	− 4	42	26	47	32	80	64	90	70	90	64	94	70	69	48
24	59	36	57	34	− 5	−22	14	− 2	25	2	33	27	41	34	82	59	94	79	95	71	94	74	67	47
25	61	35	38	21	10	−12	19	− 3	33	10	26	20	40	32	78	65	94	78	87	76	96	70	67	47
26	62	36	44	21	18	5	21	− 5	39	11	32	10	61	39	80	64	92	72	86	69	92	73	65	61
27	64	36	30	− 2	12	−14	15	− 5	25	11	48	27	60	45	72	64	96	73	89	67	83	64	85	77
28	68	38	20	10	26	6	− 6	−16	33	11	50	39	62	41	83	62	89	69	89	68	85	62	80	52
29	63	47	18	− 3	32	15	5	−26	.....	.....	56	34	63	40	83	63	87	68	87	65	86	63	57	44
30	58	45	30	11	38	26	28	− 1	.....	.....	55	39	60	45	59	45	85	64	88	67	97	68	63	41
31	56	36	.....	.....	37	22	29	6	.....	.....	53	36	.....	.....	68	43	.....	.....	85	70	102	69	.....	.....
Range	58°		63°		71°		73°		60°		74°		51°		43°		47°		40°		46°		40°	
Monthly means	55°.5		34°.6		20°.5		17°.6		26°.1		38°.7		48°.5		61°.5		77°.9		76°.3		78°.7		63°.9	

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Maximum, minimum, and mean temperatures- Continued.

KEY WEST, FLA.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	87	79	82	72	73	59	76	.....	68	62	75	64	84	74	90	74	91	73	.....	.....	91	80	89	80
2	83	75	84	75	72	(*)	74	.....	74	63	81	68	87	74	89	76	85	75	.....	.....	87	78	91	79
3	83	78	81	74	73	.....	76	68	77	67	74	57	85	74	91	75	89	76	.....	.....	89	75	88	80
4	87	75	78	72	72	.....	81	70	81	70	61	54	85	75	81	73	91	77	.....	.....	89	78	90	80
5	81	74	85	75	76	.....	80	68	82	69	60	53	85	74	91	71	90	80	.....	.....	91	80	90	77
6	86	76	86	76	79	.....	75	66	82	71	68	58	83	74	87	76	89	79	.....	.....	90	79	86	71
7	86	78	87	77	74	.....	70	65	75	66	69	59	83	73	89	76	89	79	.....	.....	88	75	85	77
8	89	79	86	76	74	.....	68	64	74	64	73	62	84	74	91	75	90	76	.....	.....	91	78	80	70
9	88	79	86	78	70	.....	69	61	71	61	75	63	86	71	92	76	80	74	.....	.....	.....	.....	85	75
10	86	79	83	76	72	.....	69	62	70	59	78	64	86	75	90	76	88	72	.....	.....	90	74	86	80
11	85	77	84	77	82	.....	62	55	76	67	80	64	86	74	90	77	88	77	.....	.....	89	81	83	74
12	86	74	81	75	75	.....	66	57	80	70	75	67	75	70	85	74	88	79	.....	.....	92	79	89	79
13	87	77	83	74	69	.....	71	63	76	67	72	66	78	68	85	76	88	79	.....	.....	93	80	88	78
14	80	75	80	72	69	.....	73	64	83	70	74	66	83	65	85	75	89	79	.....	.....	92	80	91	79
15	79	73	80	69	71	.....	76	66	80	72	71	66	83	73	90	78	91	79	.....	.....	90	80	88	78
16	79	72	71	61	79	.....	80	65	82	72	79	67	85	74	89	78	91	78	.....	.....	91	80	88	76
17	82	74	68	58	79	.....	70	62	78	69	78	67	74	62	89	78	91	79	.....	.....	90	81	84	79
18	82	75	71	66	80	.....	65	60	80	68	82	67	76	61	90	78	(†)	.....	.....	.....	91	81	86	79
19	80	75	70	67	80	.....	65	59	79	67	82	67	73	62	87	79	.....	.....	.....	.....	89	79	86	80
20	82	74	69	66	82	.....	62	54	80	69	82	71	77	64	87	79	.....	.....	.....	.....	88	79	91	79
21	79	74	72	64	75	.....	73	57	80	69	74	65	78	70	90	79	.....	.....	.....	.....	89	72	89	80
22	85	74	72	68	69	.....	76	62	83	71	77	64	76	70	88	78	.....	.....	.....	.....	89	77	89	77
23	89	78	73	67	73	.....	73	66	81	68	80	69	84	68	92	79	.....	.....	.....	.....	88	76	90	80
24	82	77	79	69	79	.....	68	63	71	65	82	72	85	71	92	79	.....	.....	.....	.....	90	78	89	79
25	79	74	80	72	81	.....	64	58	77	66	89	73	87	71	89	77	.....	.....	.....	.....	88	76	89	80
26	77	74	85	72	74	.....	76	61	79	70	85	67	78	70	91	79	.....	.....	.....	.....	91	80	89	80
27	78	73	82	70	70	.....	81	70	83	71	79	65	84	70	89	78	.....	.....	.....	.....	90	80	87	77
28	75	70	74	70	64	.....	81	71	74	68	85	70	90	75	91	78	.....	.....	.....	.....	90	81	86	75
29	78	70	72	65	70	.....	82	70	.....	.....	86	73	89	75	88	75	.....	.....	.....	.....	90	82	87	76
30	78	70	65	56	71	.....	82	71	.....	.....	82	72	85	75	90	79	.....	.....	89	82	90	81	85	72
31	82	72	.....	.....	72	.....	76	66	.....	.....	83	72	.....	.....	91	77	.....	.....	91	81	88	79	.....	.....
Range	19°		31°		.....		28°		24°		36°		29°		21°		.....		.....		21°		21°	
Monthly means	78°. 2		73°. 7		69°. 1		69°. 9		72°. 1		71°. 5		76°. 8		82°. 4		83°. 6		83°		83°. 5		82°. 5	

* Minimum thermometer broken.

† Maximum and minimum thermometers broken.

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Maximum, minimum, and mean temperatures—Continued.

KINGSTON, CANADA.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	59	42	54	32	30	21	25	7	20	— 5	22	16	42	20	61	37	65	46	75	65	81	69	78	61
2	59	38	48	34	14	26	34	19	15	—10	34	22	45	34	52	37	71	56	81	63	79	67	75	57
3	61	44	45	34	40	30	42	33	29	9	22	4	40	34	48	36	74	56	78	67	70	62	74	52
4	59	39	50	32	37	18	37	24	40	29	17	2	45	30	55	37	74	57	75	63	76	58	73	63
5	73	43	50	33	35	22	27	21	32	14	21	— 3	42	34	60	42	69	48	78	56	76	54	74	54
6	70	58	51	41	33	16	26	0	42	24	26	3	42	34	67	37	67	53	73	56	78	65	63	44
7	62	41	50	35	35	15	22	— 2	40	21	41	23	41	34	68	40	67	53	73	52	74	66	62	46
8	59	41	51	36	40	32	32	5	38	20	42	31	40	34	60	47	72	49	72	58	81	62	67	47
9	67	38	47	33	36	5	28	3	21	1	32	16	46	34	65	47	76	56	75	54	80	58	71	48
10	51	42	47	31	15	6	8	— 6	9	— 6	35	22	42	33	61	44	80	54	76	58	78	55	71	56
11	51	33	51	37	12	— 1	10	— 8	39	10	39	28	57	32	60	41	74	57	72	57	80	58	74	61
12	51	32	52	35	21	3	10	— 9	16	4	34	25	55	35	54	38	71	48	73	58	71	62	80	62
13	50	39	46	28	30	20	40	8	9	— 7	35	20	52	35	55	40	75	49	78	60	76	63	79	49
14	48	38	43	33	35	26	37	9	17	— 2	41	27	50	34	51	34	75	58	81	67	77	61	53	42
15	47	33	41	25	40	16	34	3	28	5	41	30	52	38	55	35	77	57	85	67	72	58	60	42
16	50	35	36	24	30	20	49	33	35	15	42	26	53	35	58	41	69	57	77	59	73	57	64	45
17	55	32	37	17	30	16	45	6	37	19	40	23	52	33	61	43	68	51	70	61	73	57	61	38
18	55	41	39	27	28	15	10	1	40	14	37	21	45	34	64	42	72	48	78	60	73	58	75	53
19	46	33	31	24	25	11	18	6	40	27	41	25	45	33	68	40	76	52	75	59	73	58	70	47
20	49	28	30	11	36	11	27	11	30	14	36	31	42	32	74	46	80	62	69	55	77	60	61	42
21	61	45	36	11	23	15	30	24	31	13	35	28	45	31	59	50	75	52	72	58	80	64	61	36
22	64	51	37	31	16	— 8	26	11	15	4	35	23	45	27	71	48	71	50	73	57	79	62	62	51
23	58	41	38	31	18	— 2	13	— 6	8	— 9	40	13	44	25	74	54	77	52	80	65	71	53	63	52
24	56	32	41	34	0	—18	8	0	19	5	22	5	42	32	73	50	81	63	84	67	.....	.....	67	47
25	52	38	52	34	— 1	—24	14	3	29	11	19	10	45	32	74	54	84	58	83	64	.....	.....	65	54
26	53	44	35	27	— 2	—11	20	7	34	16	23	15	52	33	79	49	78	62	73	63	.....	.....	65	51
27	51	44	35	17	— 1	— 8	22	12	30	19	24	5	51	35	73	57	78	60	79	62	.....	.....	78	59
28	47	32	25	15	12	— 8	23	— 4	37	22	39	9	51	32	69	54	82	66	87	61	.....	.....	77	60
29	52	32	25	7	10	— 4	3	—20	.....	.....	40	35	61	34	65	46	81	63	79	68	.....	.....	71	51
30	58	31	22	7	12	— 5	22	— 1	.....	.....	41	30	55	35	61	44	82	68	79	63	.....	.....	59	42
31	52	33	.....	.....	12	2	25	15	.....	.....	41	29	.....	.....	63	40	.....	.....	81	60	71	62	.....	.....
Range	45°		47°		65°		62°		52°		45°		41°		45°		38°		35°		.....		44°	
Monthly means	.....		.....		.....		.....		.....		.....		.....		.....		.....		.....		.....		.....	

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Maximum, minimum, and mean temperature—Continued.

LA CROSSE, WIS.

Day of month.	1872.						1873.																	
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	.....	.....	46	29	34	15	19	5	0	−20	34	3	45	32	54	43	81	49	81	58	76	64	73	58
2	.....	.....	38	33	38	18	24	16	7	−32	23	4	49	31	52	44	84	62	83	64	72	62	79	51
3	.....	.....	46	34	37	11	27	5	24	0	23	−13	59	33	69	37	69	59	81	65	77	53	86.5	57
4	.....	.....	40	32	40	11	10	− 9	28	3	21	−23	62	39	75	42	80	56	84	64	83	56	77	58
5	.....	.....	41	37	40	8	14	−12	34	− 7	37	10	52	42	75	46	86	57	77	63	85	60	59	52
6	.....	.....	51	31	33	11	18	−26	42	4	51	23	47	39	77	52	92	61	81	58	88	66	71	53
7	.....	.....	50	39	42	11	36	5	42	14	51	25	45	36	68	54	91	66	80	64	89	68	63	44
8	.....	.....	50	32	37	1	8	−14	17	3	46	19	37	30	62	50	77	67	78	59	90	64	69	41
9	.....	.....	55	33	12	− 8	− 4	−20	29	− 3	29	23	35	25	53	44	70	63	71	62	93	67	73	52
10	.....	.....	51	35	15	− 8	4	−18	43	16	46	23	47	27	55	45	76	57	77	57	87	67	83	56
11	.....	.....	42	23	21	8	23	− 6	27	− 5	35	15	46	35	64	37	78	57	78	54	83	61	92	56
12	.....	.....	45	26	27	7	37	5	23	− 5	43	13	60	28	74	38	82	57	82	56	90	61	76	48.5
13	.....	.....	43	20	29	15	38	20	20	−11	53	31	57	48	55	37	84	66	91	72	86	63	54	42
14	(*)	.....	30	18	32	5	27	19	31	− 1	58	34	69	52	49	40	88	60	92	73	84	62	58	33
15	38	38	26	18	13	−13	28	10	34	10	51	34	52	39	69	42	89	64	89	71	72	62	68	55
16	55	29	31	14	12	−10	12	−21	41	14	46	25	53	39	72	45	83	64	95	75	75	63	69	40
17	61	36	23	10	19	− 3	0	−30	45	12	52	40	47	38	72	47	89	60	84	71	74	58.5	77	49
18	64	30	19	0	10	−10	− 3	−43	44	11	48	33	62	40	70	49	90	71	72	57	84	54	75	43
19	72	30	22	8	2	−19	23	−12	27	− 1	43	28	55	35	62	49	80	70	77	53	92	66	55	37
20	84	46	20	− 3	4	−16	32	18	28	−15	30	13	49	39	63	48	87	58	77	57	94	70	59	33
21	72	36	38	16	−11	−29	27	18	3	−25	39	20	41	27	76	48	90	64	84	56	87	65	70	47
22	54	31	40	26	12	−21	20	2	− 2	−22	46	22	48	30	70	55	86	72	90	65	82	61	59	45
23	61	28	42	25	−10	−28	18	− 5	8	−29	44	11	40	28	72	58	89	70	95	69	85.5	61	66	38
24	60	30	35	25	− 6	−37	12	− 8	21	−12	32	21	43	29	75	57	90	75	93	71	86	68	56	47
25	61	29	35	15	4	− 6	8	−16	32	− 3	24	13	54	31	82	53	96	72	93	68	89	67	65	45
26	61	28	30	7	13	− 5	17	− 8	29	21	30	6	57	42	75	64	92	73	80	78	80	65	81	45
27	65	31	11	−13	5	−23	10	− 8	29	11	43	19	67	35	69	58	82	64	86	55	83	61	63	51
28	66	31	4	−10	13	−17	− 4	−28	33	6	50	31	59	44	82	55	92	67	88	56	87	59	53	48
29	61	48	12	− 4	22	6	4	−36	.....	.....	47	31	67	47	66	44	81	64	86	60	86.5	63.5	50	38
30	55	39	18	−11	25	13	30	− 1	.....	.....	41	36	67	42	67	36	81	54	91	63	73	64	59	31
31	42	38	.....	.....	24	10	16	− 4	.....	.....	59	30	.....	.....	78	44	.....	.....	87	64	78	65	.....	.....
Range	.....	.....	68°		79°		81°		77°		82°		44°		46°		47°		42°		41°.5		61°	
Monthly means	.....	.....	27°.3		9°.7		6°.7		17°.7		30°.7		43°.7		57°.5		73°.6		72°.4		71°9		56°.6	

* Station opened October 15, 1872.

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Maximum, minimum, and mean temperatures—Continued.

LEAVENWORTH, KAN.

Day of month.	1872.						1873.																	
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	78	49	53	43	55	38	30	22	4	— 5	36	30	57	34	54	47	82	61	79	65	82	69	86	72
2	83	53	48	38	53	34	30	25	26	— 9	30	13	67	31	54	43	84	66	83	64	74	63	87	67
3	87	60	51	35	45	27	34	19	44	32	30	7	78	43	66	44	82	65	87	71	80	55	91	67
4	82	61	48	41	49	28	29	26	43	30	34	10	85	66	66	48	80	59	92	73	81	59	87	72
5	61	54	50	39	43	24	21	10	48	24	64	26	80	55	73	43	83	59	90	70	84	64	81	63
6	69	46	59	36	45	28	30	12	49	36	61	41	69	39	73	53	85	62	91	74	88	62	68	58
7	75	48	64	45	57	29	30	15	49	36	55	46	43	34	66	55	85	65	86	72	89	63	69	52
8	81	55	59	42	39	15	14	9	38	30	63	32	34	28	66	50	82	68	85	66	88	65	72	45
9	61	45	68	45	23	6	7	0	50	27	52	39	50	28	56	47	72	64	87	69	91	70	76	54
10	53	35	58	59	25	16	17	—11	50	40	64	35	46	38	65	46	78	57	80	65	93	70	86	54
11	61	31	52	27	25	16	42	20	36	28	44	34	56	37	78	45	81	57	77	64	92	73	90	65
12	74	47	50	31	34	18	47	41	32	16	48	26	61	34	84	49	83	58	88	65	92	75	81	59
13	61	43	32	23	44	24	37	32	34	23	68	36	68	49	78	60	77	64	92	75	93	75	64	44
14	59	36	27	20	35	14	38	34	46	28	73	46	58	35	73	56	89	62	94	77	93	75	73	44
15	78	50	29	22	22	4	35	15	38	34	54	36	39	33	56	45	87	67	92	74	85	68	83	57
16	63	42	31	23	22	11	14	2	50	34	58	29	44	32	70	53	90	66	92	76	80	58	74	56
17	71	42	29	14	29	9	10	— 7	62	38	64	41	53	37	71	58	86	67	87	75	82	57	89	56
18	74	42	37	10	28	11	21	— 2	39	31	58	42	63	36	66	56	90	66	77	64	88	63	77	49
19	83	48	29	19	13	9	41	24	44	24	57	34	60	38	69	55	91	69	78	55	88	63	63	38
20	81	51	31	9	16	— 6	48	30	34	12	42	22	65	36	78	49	88	67	80	55	88	65	70	47
21	66	45	42	32	0	— 9	42	30	48	9	46	30	81	42	79	57	88	71	82	60	89	63	68	47
22	58	43	52	25	28	9	36	22	15	2	72	34	82	38	85	63	84	69	85	63	91	68	70	54
23	61	33	55	38	— 4	— 8	16	9	24	8	55	26	50	34	79	56	84	76	89	64	91	65	72	52
24	62	35	40	29	— 4	—13	11	— 2	28	10	45	29	46	33	83	63	91	74	92	67	90	71	66	50
25	61	35	37	18	14	1	19	5	33	23	30	10	52	26	70	61	92	72	88	74	94	70	77	43
26	64	33	45	16	2	— 4	20	2	35	18	34	10	62	37	77	57	94	72	86	69	96	74	84	63
27	68	37	27	6	13	— 4	19	— 3	29	12	59	27	52	38	78	54	97	66	88	64	92	71	81	69
28	71	55	20	9	25	15	- 3	—13	31	61	58	42	64	45	81	57	87	68	85	67	95	72	74	48
29	60	45	24	0	33	13	6	—29	.....	.....	67	33	66	41	85	66	81.5	66	87	63	98	73	57	39
30	58	41	38	15	27	33	23	5	.....	.....	60	40	57	44	81	59	88	63	83	67	99	74	65	38
31	60	36	.....	.....	23	17	24	2	.....	.....	56	34	.....	.....	72	56	.....	.....	86	67	97	74	.....	.....
Range	56°		68°		70°		77°		71°		66°		59°		42°		40°		39°		44°		53°	
Monthly means	56°.4		35°		21°		19°		30°		42°.1		48°.6		63°		75°.5		77°.5		79°.2		65°.4	

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Maximum, minimum, and mean temperatures—Continued.

LEXINGTON, KY.

Day of month.	1872.						1873.																	
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	.....	.....	56	41	45	22	39	34	39	22	39	28	60	45	69	55	77	57	82	67	83	70	92	70
2	.....	.....	56	44	48	40	53	38	37	32	35	25	54	40	66	52	82	63	87	73	86	70	84	64
3	.....	.....	49	35	43	30	52	36	52	31	29	4	72	42	68	46	87	68	89	77	77	65	86	68
4	.....	.....	55	35	43	26	35	27	60	41	25	— 1	80	56	62	43	85	69	89	64	76	57	86	69
5	.....	.....	52	45	45	30	35	27	50	34	31	9	84	65	70	50	80	70	81	64	81	57	82	66
6	.....	.....	43	39	46	26	32	23	48	38	50	25	84	66	75	58	82	67	77	61	85	64	77	57
7	.....	.....	59	37	50	26	41	25	51	34	59	37	80	66	65	55	82	67	81	61	84.5	67	66	55
8	.....	.....	52	41	45	30	38	30	45	25	55	39	80	57	68	60	78	57	77	64	81	68	73	49
9	.....	.....	52	36	30	19	26	15	34	15	60	39	62	35	72	56	85	63	80	61	81	83	79	64
10	.....	.....	63	39	22	9	17	5	45	25	60	38	57	37	70	54	70	68	82	67	86	67	82	64
11	.....	.....	59	51	22	16	36	7	44	36	56	39	55	38	72	50	72	65	79	61	88	70	86	65
12	(*)	.....	42	35	22	11	53	30	40	26	56	25	47	37	75	51	76	60	86	60	78	66	85	66
13	55	40	58	32	39	18	49	41	36	22	50	33	59	39	75	61	82	58	83	65	79	67	73	52
14	48	32	36	25	46	26	49	43	42	29	63	41	66	46	72	58	73	64	86	68	74	59	63	43
15	59	33	31	25	40	32	63	46	42.5	31	72	45	56	51	67	49	83	64	83	69	80	60	73	43
16	67	47	29	19	38	25	56	24	57	40	51	37	55	45	70	52	85	70	87	67	76	60	78	59
17	72	58	35	19	31	20	24	10	45	34	56	34	55	41	68	50	81	70	90	74	72	66	82	61
18	63	51	36	22	32	27	20	10	64	38	58	45	48	39	70	50	78	68	85	73	78	60	84	67
19	62	42	37	24	41	25	23	9	54	39	60	40	61	39	81	56	79	72	84	63	79	63	77	50
20	71	41	31	18	40	19	39	29	52	34	56	31	60	41	82	64	83	69	79	61	81	62	63	41
21	72	49	43	19	21	0	42	30	51	20	38	27	60	42	73	61	85	64	81	61	85	65	72	47
22	65	57	40	31	22	5	39	30	31	17	52	29.5	78	49	81	62	84	72	84	64	87	70	75	60
23	49	45	51	26	25	4	45	30	24	1	62	40	41	32	85	64	85	72	86	67	89	71	63	55
24	55	39	57	35	9	— 2	26	15	25	4	59	43	48	31	84	64	88.5	70	90	70	90	69	72	53
25	59	49	52	35	23	5	32	16	36	20	56	40	45	33	81	70	85	66	87	69	92	72	72	60
26	57	49	40	32	23	11	30	20	42	20	40	21	55	34	83	65	86	71	78	67	89	71	82	63
27	61	42	35	21	13	11	31	18	39	25	45	26	63	46	82	64	80	70	78	66	84	69	85	69
28	55	44	35	17	23	4	25	5	39	25	59	35	59	45	76	67	82	68	81.5	67	75	64	85	70
29	65	44	15	2	32	20	15	— 3	.....	.....	49	36	60	47	76	64	79	70	83.5	68.5	79	64	75	55
30	52	43	24	5	38	30	20	3	.....	.....	60	35	64	45	79	56	77	69	87	68	85	66	63	45
31	56	41	.....	.....	41	37	39	21	.....	.....	56	38	.....	.....	71	48	.....	.....	83	70	89	73	.....	.....
Range	.....	.....	61°		52°		66°		63°		37°		53°		42°		31°5		30°		35°		51°	
Monthly means	.....	.....	38°. 2		27°. 9		30°. 4		35°. 6		40°. 9		53°. 1		64°. 7		75°. 7		76°. 5		73°. 7		66°. 8	

* Station opened October 11, 1872.

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Maximum, minimum, and mean temperatures—Continued.

LOUISVILLE, KY.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	65	46	59	38	59	38	45	34	36	21	43	31	65	46	76	53	83	65	87	71	87	75	94	72
2	72	44	60	44	60	44	55	36	35	10	36	28	57	44	65	52	83	66	91	77	89	74	83	63
3	81	57	50	38	50	38	49	37	54	32	28	10	77	43	59	49	75	68	93	78	80	67	89	75
4	85	64	60	39	60	39.5	38	28	59	42	23	3	83	61	65	45	76	65	93	70	80	59	83	74
5	85	65	57	47	57	47	36	27	53	33	37	13	.....	.....	73	47	82	62	87	69	82	66	84	70
6	81	57.5	50	42	50	42	32	27	53	36	61	23	87	71	77	57	83	61	80	65	90	62	77	52
7	66	51	61	36	61	36	45	27	55	33	60	44	78	56	71	58	81	73	82	65	90	75	73	60
8	70	49	54	44	50	32	42	25	45	22	59	41	78	52	71	60	83	51	78	66	88	78	76	54
9	74	49	56	38	32	12	29	14	36	18	63	43	57	41	77	55	86	62	81	63	88	70	80	52
10	62	44	62.5	37.5	30	13	18	5	51	29	64	33	63	41	68	52	90	68	82	69	89	70	86	61
11	54	37	59	49	30	21	42	13	48	39	51	39	56	44	68	48	88	71	82	65	93	77	88	68
12	60	36	49	37	33	17	51	35	42	30	43	29	49	39	82	48	83	75	88	66	85	73	89	73
13	58	42	55	40	43	20	56	48	42	26	55	31	63	41	79	61	85	73	89	77	82	69	.....	.....
14	50	35	41	30	48	29	55	39	43	27	68	38	73	39	75	57	86	70	93	77	79	64	64	49
15	61	33	32	27	45	31	64.5	39	47	33	71	46	61	47	61	47	90	72	92	72	83	65	75	42
16	67	51	.....	.....	34	29	60	21	51	21	51	33	55	45	72	52	90	76	90	70	80	60	80	61
17	72	55	36	21	35	21	22	12	52	38	62	34	51	40	72	52	89	75	93	80	72	62	87	59
18	65	50	38	25	35	30	18	12	68	33	57	47	53	41	76	60	83	77	93	75	81	61	86	71
19	64	42	41	29.5	36	28	28	15	60	38	62	38	67	41	84	60	87	75	77	67	82	63	75	54
20	72	41	31	20	39	22	46	25	59	39	51	33	64	42	83	60	85	76	81	67	84	64	64	44
21	73	48	44.5	22	22	3	45	31	50	12	42	30	62	42	82	63	89	63	82	58	88	63	71	44
22	63	52	44	28	22	− 4	43	32	34	16	52	32	77	41	86	64	90	74	87	69	89	72	61	54
23	55	45	55	28	24	3.5	44	30	19	7	64	39	43	35	88	66	95	77	88	60	90	61	60	53
24	57	39	59	40	10	− 2	30	18	29	7	62	40	47	35	88	68	93	77	90	71	93	70	70	47
25	58	47	58	37.5	22.5	5	30	13	40	25	48	31	48	36	84	70	95	68	89	77	93	78	72	60
26	69	53	45	33	25	10.5	31	21	47	33	34	22	59	35	86	68	89	71	84	71	90	72	87	60
27	63.5	44.5	41	25	27	7	30	17	41	25	48	20	67	39	86	66	84	68	79	73	86	71	89	69
28	62	46	39	19	30	9.5	25	5	39	25	61	35	61	48	78	66	84	68	83	72	80	64	86	73
29	67	48	21	4.5	37	22	19	− 4	.....	.....	52	40	65	49	80	61	83	71	87	72	82	67	77	57
30	61	48	30	10	43	28	34	7	.....	.....	57	35	65	48	82	59	82	72	83	73	82	69	64	46
31	60	45	.....	.....	46	38	45	18	.....	.....	61	39	.....	.....	74	52	.....	.....	82	76	93	74	.....	.....

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Maximum, minimum, and mean temperatures—Continued.

MOBILE, ALA.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	73	56	69	55	62	40	68	51	63	36	67	50	71	63	79	67	82	71	92	79	91	75	89	69
2	76	53	65	57	66	56	62	50	64	42	65	42	79	58	78	63	86	68	92	80	93	75	89	70
3	80	53	70	49	68	53	64	45	65	41	52	31	77	54	78	55	85	72	96	76	94	75	90	72
4	81	58	68	58	66	46	61	41	65	53	48	34	80	67	75	60	90	72	97	77	93	75	91	75
5	83	63	69	60	66	45	61	41	66	53	54	34	80	68	78	62	88	74	96	79	84	74	90	76
6	85	66	70	66	64	52	46	37	72	50	60	36	79	68	71	61	86	73	97	79	78	71	91.5	73.5
7	75	70	62	57	69	46	51	34	58	43	64	42	81	68	81	66	89	71	96	78	82	70	82	71
8	83	65	62	55	68	45	56	34	65	42	65	53	80	59	84	64	85	72	98	71	88	73	85	73
9	79	71	62	56	54	40	46	40	55	40	64	56	65	46	78	65	83	71	94	72	89	76	82	72
10	77	70	68	57	40	33	51	33	65	35	65	55	70	44	83	66	82	71	93	72	94	74	77	70
11	70	58	72	61	40	33	53	30	66	52	71	56	76	50	83	65	86	73	91	76	83	73	85	67
12	71	44	72	58	41	28	61	34	65	52	65	53	71	53	81	59	89	73	94	74	88	72	87	68
13	72	48	75	62	45	26	64	42	60	42	65	43	71	46	78	66	87	74	94	78	92	74	86	71
14	66	52	70	44	56	27	67	47	70	47	68	45	67	57	85	66	90	76	95	74	87	73	80	69
15	65	42	47	32	63	41	66	55	67	56	73	49	63	57	85	72	89	74	91	75	88	72	83	63
16	73	44	46	30	62	54	63	44	75	58	66	59	71	50	86	67	87	73	89	73	90	71	81	69
17	77	54	47	31	61	52	45	33	67	48	72	54	67	47	85	69	88	75	94	73	94	73	75	71
18	78	56	.....	.....	62	54	36	23	71	52	73	57	70	46	85	72	87	72	94	75	89	75	73	71
19	74	56	54	32	64	51	40	19	68	62	72	60	76	50	82	66	91	75	94	75	88	72	86	72
20	76	52	59	36	66	41	59	31	68	60	68	52	76	60	83	69	91	75	86	72	87	73	86	66
21	77	64	62	35	58	34	69	50	62	50	65	43	80	59	81	66	91	76	84	72	78	70	86	61
22	74	65	59	44	45	27	69	47	59	40	71	51	84	62	86	66	95	76	75	69	84	72	81	70
23	78	62	59	36	58	39	60	47	56	42	65	55	81	63	88	72	91	75	88	73	88	72	80	73
24	72	60	67	37	58	45	60	32	55	39	76	59	66	56	92	72	95	73	87	71	90	74	80	70
25	64	57	71	47	46	37	51	31	67	53	72	51	69	51	91	71	93	71	89	70	90	76	84	68
26	73	65	67	59	42	27	56	47	72	57	54	37	71	46	89	71	91	76	90	72	90	73	84	73
27	73	53	61	47	31	18	49	39	69	50	60	38	76	52	87	69	90	75	92	73	91	73	89	75
28	75	54	60	40	45	23	47	38	64	39	68	50	85	67	82	69	86	75	92	75	88	71	86	75
29	75	54	46	33	58	39	47	30	.....	.....	68	52	80	71	82	71	86	74	90	76	89	75	88	74
30	71	59	.....	.....	59	37	40	30	.....	.....	70	50	82	71	88	71	90	76	87	74	92	76	80	69
31	61	56	.....	.....	66	48	53	35	.....	.....	77	63	.....	.....	90	70	.....	.....	91	74	90	73	.....	.....
Range	43°		45°		51°		50°		40°		46°		41°		37°		27°		29°		24°		30°.5	
Monthly means	65°.6		54°		47°.9		46°.3		56°.1		57°		65°.7		73°.9		79°.4		82°.2		80°.2		76°.1	

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Maximum, minimum, and mean temperatures—Continued.

MONTGOMERY, ALA.

Day of month.	1872.						1873.																	
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	72	52	65	43	60	33	65	53	61	33	51	42	76	56	70	65	81	65	94	74	93	72	92	74
2	74	49	66	54	68	55	61	55	59	40	47	39	75	55	74	61	85	67	95	77	93	76	90	74
3	80	51	68	44	66	46	59	44	69	42	46	31	81	50	71	52	81	71	94	75	95	77	91	75
4	82	54	69	42	61	38	58	36	76	56	41	25	86	62	73	55	89	70	96	78	95	75	92	77
5	84	58	69	57	64	37	56	42	67	61	49	26	88	65	77	56	91	71	97	80	88	73	93	76
6	83	61	70	62	65	50	43	33	63	48	61	32	88	65	70	61	86	70	96	77	80	71	95	74
7	76	67	66	58	67	48	48	29	58	41	66	39	95	64	81	63	89	71	96	76	87	71	89	71
8	81	58	59	53	64	45	55	32	63	48	58	49	86	62	89	63	91	74	96	76	91	73	81	71
9	82	65	59	53	53	32	45	33	51	36	65	51	62	48	85	64	81	73	92	72	93	74	76	68
10	78	67	57	53	37	27	43	30	57	31	72	50	70	40	83	67	83	71	92	73	93	75	78	70
11	69	50	69	54	40	30	48	26	66	44	75	58	73	50	81	62	89	72	94	75	89	76	85	65
12	72	43	67	56	42	28	59	30	65	48	66	46	66	49	86	57	89	72	94	74	93	74	86	66
13	75	46	77	58	44	23	64	36	62	41	62	36	68	43	84	65	90	71	93	77	93	76	87	67
14	62	46	69	40	51	24	67	40	68	51	70	40	72	53	80	62	87	71	92	76	88	74	79	65
15	66	36	50	30	56	44	70	52	65	52	76	49	69	60	86	62	87	72	93	76	88	70	82	56
16	73	41	41	27	65	54	64	42	67	54	67	53	67	50	81	65	88	74	95	76	91	70	82	64
17	77	47	43	24	58	52	42	24	65	48	65	45	61	45	87	65	88	71	95	76	92	70	80	67
18	79	50	47	30	64	50	27	16	70	49	75	47	64	44	89	69	91	71	96	78	90	74	76	71
19	74	52	51	29	68	48	32	14	65	51	67	61	73	47	87	73	92	73	89	76	88	73	81	70
20	73	48	51	34	69	38	59	28	66	58	64	47	78	50	89	69	93	73	82	71	87	71	78	62
21	75	56	56	26	45	31	64	49	66	42	62	39	82	57	82	67	95	78	86	71	86	73	81	57
22	72	63	54	41	40	21	59	34	57	35	66	41	86	54	89	67	94	75	82	72	85	72	80	63
23	77	62	56	31	51	30	57	41	52	35	69	47	80	63	91	72	94	74	84	71	90	70	73	69
24	73	60	62	33	55	42	42	32	49	31	77	57	68	52	93	74	85	74	88	73	93	74	74	66
25	77	60	69	37	47	37	45	24	46	37	78	48	65	47	93	72	93	71	89	72	92	74	81	64
26	72	55	68	50	40	24	52	40	69	45	48	35	68	42	91	70	89	76	92	73	90	72	86	64
27	72	49	60	45	32	19	43	36	63	44	50	32	78	45	94	71	88	73	93	76	90	70	84	73
28	75	47	58	36	38	21	46	32	57	35	56	46	80	65	87	68	92	75	92	75	90	70	85	71
29	69	51	45	27	48	29	37	30	.....	.....	67	48	73	60	85	70	87	73	92	73	90	70	89	71
30	66	50	41	21	56	34	41	32	.....	.....	80	44	75	63	86	67	88	71	87	73	90	70	80	66
31	59	51	.....	.....	70	37	55	39	.....	.....	75	50	.....	.....	89	69	.....	.....	85	74	93	75	.....	.....

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Maximum, minimum, and mean temperatures—Continued.

MONTREAL, CANADA.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	69	51	45	42	36	12	20	2.5	3	— 5	40	28	49	31	71	45	71	48	75	73	74	67	78	56
2	59	47	42	40	35	24	19	14	12	—10	40	22	42	33	46.5	38	75	48	81	66	81	64	78	56
3	52	44	41	36	34	27	37	34	22	6	32	18	41	34	48	35	70	49	82	67	75	64	76	53
4	69	43	48	32	33	21	37	30	37	20	30	11	52	32	65	35	68	50	82	69	73	60	64	57
5	68	41	54	31	26	21	29	23	27	13	30	7	44	30	68	41	72	54	86	66	78	58	74	60
6	77	54	48	39	34	20	20	4	44	18	38	10	41	34	69	36	72	54	80	61	82	64	70	51
7	58	57	47	40	21	12	4	— 6	27	17	41	20	37	32	71	39	70	54	82	58	78	64	62	45.5
8	55	49	45	34	34	24	20	— 2	31	16	38	35	44	34	71	41	73	54	80	61	82	65	73	50
9	73	43	51	33	32	8	24	12	15	10	31	23	40	32	61	46	77	55	72	57	80	66	74	48
10	55	50	52	32	13	2	15	3	13	— 5	45	21	46	35	60	49	84	57	80	58	78	58	71	52.5
11	50	37	45	31	8	0	14	— 2	8	— 2	33	21	54	34	57	49	74	63	78	62	80	59	81	56
12	54	32	47	39.5	9	0	15	— 2	22	7	43	25	45	35	64	46	69	53	75	54	79	60	83	60
13	49	40	46	30	17.5	7	15	—10	21	— 4	44	23	42	38	52	44	73	52	80	57	82	59	69	65
14	42	35	39	32	36	22	31	16	16	— 5	45	30	39	34	48	37	74	57	90	68	81	58	62	46
15	43	38	36	27	34	21	20	— 6	26	— 1	35	27	55	35	58	35	76	58	86	70	75	61	62	43
16	47	37	35	28	27	11	41	24	24	5	33	27	57	33	61	44	76	60	74	58	80	65	68	50
17	54	32	36	23.5	31	20	29	17	43	15	39	20	47	35	60	42	70	54	69	58	81	56	52	40
18	51	47	34	25	25	16	11	6	38	18	34	21	40	36	64	44	70	50	64	57	78	59	64	42
19	50	39	33	26	28	12	16	12	40	29	37	24	45	35	69	49	74	50	72	58	74	59	68	61
20	51	34	27	23	25	15	22	8	35	21	40	25	46	37	71	43	72	64	70	56	80	58	70	44
21	66	35	31	11	23	12	22	16	14	11	36	23	52	29	66	48	69	56	78	60	82	62	70	40.5
22	70	48	36	25	16	6	32	22	25	10	37	23	53.5	30	70	48	65	50	82	62	80	69	65	44
23	60	46	35	28	13	— 2	15	3	12	4	37	24	47	30	77	56	74	52	83	65	72	62	59	50
24	60	36	38	32	— 1	—15	9	— 2	20	— 3	27	4	54	35	75	60	81	59	86	69	77	49	68	52
25	59	35	48	34	0	—18	26	8	28	13	20	6	55	35	80	57	82	57	80	61	78	52	60	48
26	46	43	33	27	— 3	—13	20	8	42	24	21	17	49	35	80	57	83	65	79	70	77	52	67	52
27	48	44	34	25	6	— 2	15	13	37	17	29	15	61	37	82	64	85	64	79	68	80	52	65	55
28	56	31	29	18	7	— 6	24	14	40	26	36	12	62	40	80	65	81	70	86	62	82	55	80	66
29	57	31	28	23	3	—13	— 2	—15	.....	.....	36	32	69	37	70	53	84	64	80	68	85	58	71	67
30	56	32	16	10	6	—13	6	—10	.....	.....	41	34	71	41	65	41	82	71	84	68	83	64	65	40
31	47	35	.....	.....	5	—10	31	8	.....	.....	36	30	.....	.....	73	43	.....	.....	86	69	80	63	.....	.....
Range	42°		44°		54°		56°		54°		41°		42°		47°		37°		36°		36°		45°	
Monthly means	47°.5		41°.3		13°.8		14°.8		18°.4		28°.6		42°.1		57°.2		66°.9		71°.3		69°.5		60°.2	

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Maximum, minimum, and mean temperatures—Continued.

MOUNT WASHINGTON, N. H.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	39	33	24	19	8	2	7	1	4	− 7	12	4	22	16	25	22	42	31	58	50	54	43	45	38
2	33	24	22	17	23	8	20	3	− 5	−10	6	4	32	19	32	24	36	28	57	50	55	46	38	33
3	29	24	22	15	23	15	27	21	7	− 6	9	4	26	17	25	19	41	27	57	50	54	44	47	29
4	27	24	20	13	15	10	22	9	20	7	8	− 1	19	16	24	20	48	36	57	49	44	36	55	38
5	38	22	30	17	14	7	32	10	12	6	14	2	26	17	23	20	45	37	63	50	45	36	52	37
6	51	38	30	23	16	9	32	6	14	7	15	8	28	24	22	19	43	38	53	39	47	40	35	27
7	47	44	29	20	11	5	12	4	19	11	23	12	32	27	32	19	37	35	60	32	49	44	40	31
8	45	32	22	18	19	3	19	10	19	12	32	19	32	30	36	23	41	33	52	40	47	37	34	30
9	38	30	20	17	19	11	19	3	14	− 2	19	9	33	31	29	24	48	34	55	40	43	31	40	28
10	44	26	22	17	11	− 8	4	− 6	− 1	− 7	12	7	31	23	38	28	54	39	53	40	40	32	45	31
11	26	16	37	22	− 1	− 9	− 4	−11	10	− 4	14	5	30	22	38	32	49	39	45	36	46	35	48	32
12	26	12	32	29	10	− 3	− 1	−13	12	− 2	14	9	25	16	33	29	39	32	55	30	45	38	56	43
13	24	18	29	20	6	− 2	23	−11	10	0	13	7	20	14	34	26	45	32	52	37	45	35	56	40
14	28	22	27	19	9	3	22	7	16	2	12	10	20	19	26	19	44	36	57	50	47	36	44	23
15	22	18	27	14	12	7	12	7	13	1	16	10	23	17	25	19	52	39	54	43	54	44	37	22
16	24	18	19	11	13	5	32	11	21	10	20	7	26	18	29	24	56	40	45	30	51	46	36	23
17	30	17	13	9	13	8	32	26	21	10	7	2	24	18	27	23	40	30	41	35	50	30	35	18
18	33	29	13	11	12	4	27	16	23	9	15	6	20	15	26	22	44	29	35	33	51	34	51	30
19	30	19	15	12	10	− 2	16	3	23	9	15	13	26	20	26	23	54	42	50	35	52	35	50	36
20	20	14	16	10	18	2	14	3	14	6	21	9	24	18	34	25	53	34	46	34	52	39	40	20
21	36	19	15	9	13	0	18	10	19	7	16	9	24	16	33	28	36	30	41	38	57	45	26	18
22	41	36	20	14	1	− 9	16	6	13	− 3	10	7	20	17	36	32	38	32	49	38	53	47	41	25
23	39	27	20	14	− 2	− 7	12	3	− 3	−12	13	6	21	14	43	30	43	36	54	46	52	30	41	24
24	36	24	22	17	− 7	−22	13	5	− 4	15	10	2	26	19	41	35	41	35	50	42	37	24	43	31
25	41	32	28	20	−10	−22	10	− 1	5	− 5	20	5	23	20	42	35	42	35	55	40	42	30	46	34
26	41	36	20	16	16	−10	10	2	9	0	32	17	22	20	47	36	59	36	55	51	43	34	48	33
27	42	29	17	11	16	−11	15	8	16	17	19	6	21	19	50	44	50	44	52	47	45	31	57	42
28	29	21	13	1	−11	−24	8	− 1	12	6	18	8	24	19	49	41	49	41	53	43	49	35	53	50
29	28	20	13	2	− 8	−18	1	− 7	.....	.....	31	18	29	21	42	39	58	46	55	45	54	44	53	39
30	30	24	10	− 1.5	− 1	−11	8	− 3	.....	.....	31	18	30	23	40	24	55	51	54	47	53	40	43	19
31	27	24	.....	.....	4	− 2	4	− 1	.....	.....	22	17	.....	.....	33	18	.....	.....	53	44	51	42		

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Maximum, minimum, and mean temperatures—Continued.

MORGANTOWN, W. VA.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	.....	.....	.....	.....	.....	.....	.....	.....	34	14	32.5	25	60	32.5	64	55	76	45	81	67	81	64	90	62
2	.....	.....	.....	.....	.....	.....	.....	.....	27.5	14	33	24.5	59	37	72	55	80	48	86	64	84	69	78	50
3	.....	.....	.....	.....	.....	.....	.....	.....	49	13.5	.....	.....	65	35	57	44	84	54	85	67	76	67	83	57
4	.....	.....	.....	.....	.....	.....	.....	.....	60.5	44	15	1.5	77	40	60	43	86	63	84	67	76	59	81	67
5	.....	.....	.....	.....	.....	.....	.....	.....	48.5	30	22	0.5	84	57	68	38	76	61	82	67	77	57	80	60
6	.....	.....	.....	.....	.....	.....	.....	.....	50.5	29.5	46	5	84	64	74	48	81	54	71	61	80	58	72	51
7	.....	.....	.....	.....	.....	.....	.....	.....	53	28	58	29	82	58.5	63	53	73	58	76	65	83	60	74	52
8	.....	.....	.....	.....	.....	.....	.....	.....	47	31	53	46.5	83	54	64	52	77	49	72	64	85	67.5	70	52
9	.....	.....	.....	.....	.....	.....	.....	.....	20.5	16	60	36.5	68	43.5	75	54	79	54	76	62	81	66	74	46
10	.....	.....	.....	.....	.....	.....	.....	.....	40.5	11	50	32	58	38	70	57	71	58	79	57	79	59	77	52
11	.....	.....	.....	.....	.....	.....	.....	.....	45	36	49	32	66	37	65	52	70	61	74	58	81	58	80	53
12	.....	.....	.....	.....	.....	.....	.....	.....	38	30	36	30	45.5	28	67	46	74	52	79	52	84	63	83	55
13	.....	.....	.....	.....	.....	.....	.....	.....	30	24.5	45	32	57	30	72	50	78	51	83	64	75	64	74	48
14	.....	.....	.....	.....	.....	.....	.....	.....	35	28	55	31	61.5	34.5	60	41	74	56	83	67	72	61	67	39
15	.....	.....	.....	.....	.....	.....	.....	.....	43	14.5	73	38	66	33	68	47	80	64	78	67	77	60	70	39
16	.....	.....	.....	.....	.....	.....	.....	.....	48	37	44	30	56	40	65	50	87	62	83	68	75	64	74	53
17	.....	.....	.....	.....	.....	.....	.....	.....	44	31	47	22	48	39	64	39	83	62	87	62	75	62	74	55
18	.....	.....	.....	.....	.....	.....	.....	.....	62	28	53	30	46	39	67	39	84	59	84	62	77	65.5	80	54
19	.....	.....	.....	.....	.....	.....	.....	.....	53	34	56	37	55	41	72	52	85	72	78	58	76	61.5	69	46
20	.....	.....	.....	.....	.....	.....	.....	.....	46	27	48	30	56	32	72	52	85	62	76	54	80	60	55	40
21	.....	.....	.....	.....	.....	.....	.....	.....	43	25	33	26	51	40.5	71	55	84	52	75	57	84	63	64	35
22	.....	.....	.....	.....	.....	.....	.....	.....	26.5	20	38	27	52	38	80	58	88	57	79	56	85	68	69	44
23	.....	.....	.....	.....	.....	.....	.....	.....	21	2.5	59	26	36.5	32.5	85	62	88	66	82	59	86	64	62	49
24	.....	.....	.....	.....	.....	.....	.....	.....	22	−3	43	36	46	34.5	81	64	89	68	83	62	76	59	66	50
25	.....	.....	.....	.....	.....	.....	*25.5	17	31	19.5	60	38	42.5	35	83	55	71	65	86	64	79	58	68	55
26	.....	.....	.....	.....	.....	.....	34.5	22.5	40.5	16	51	20	53	35	86	62	80	53	82	69	75	67.5	79	54
27	.....	.....	.....	.....	.....	.....	33	.....	38	19	35	20.5	58	41	84	64	83	59	81	67	80	64	83	56
28	.....	.....	.....	.....	.....	.....	24	9.5	29	21	62	26	52	38	77	58	80	68	85	66	76	65	66	51
29	.....	.....	.....	.....	.....	.....	10	−9	.....	.....	51	37	58	45	79	54	85	66	82	66	80	59	77	58
30	.....	.....	.....	.....	.....	.....	33	−6	.....	.....	53	38	64	35	73	53	83	67	82	63	81	62	61	41
31	.....	.....	.....	.....	.....	.....	36.5	9	.....	.....	52	35	.....	.....	71	48	.....	.....	86	64	82	62	.....	.....
Range	.....	.....	.....	.....	.....	.....	.....	.....	65°		72°.5		52°		48°		43°		35°		29°		55°	
Monthly means	.....	.....	.....	.....	.....	.....	.....	.....	32°.8		38°.3		50°.2		61°.5		70°.6		71°.2		70°.6		62°.8	

* Station opened January 25, 1873.

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Maximum, minimum, and mean temperatures—Continued.

NEW HAVEN, CONN.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	.....	.....	.....	.....	.....	.....	29	12	31	13	38	27	50	39	69	44	75	46	75	67	85	70	84	67
2	.....	.....	.....	.....	.....	.....	25	2	19	6	38	23	44	38	53	39	77	55	86	66	87	70	75	60
3	.....	.....	.....	.....	.....	.....	38	25	37	10	33	14	55	36.5	41	35	63	50	85	67	90	67	74	58
4	.....	.....	.....	.....	.....	.....	43	26	47	32	20	10	48.5	36	61	36	70	53	88	68	80	66	79	62
5	.....	.....	.....	.....	.....	.....	36	18	43	28	25	9	45	34	72	46	82	60	83	69	78	60	85	65
6	.....	.....	.....	.....	.....	.....	37	22	41	24	35	13	42	37	60	45	82	56	75	62	79	59	67	53
7	.....	.....	.....	.....	.....	.....	29	11	37	24	43	22	50	35	63	37	74	58	75	55	84	66	68	48
8	.....	.....	.....	.....	.....	.....	31	10	46	33	46	29	58	40	53	42	60	52	75	60	83	69	68	56
9	.....	.....	.....	.....	.....	.....	26	21	37	7	45	29	49	41	52	44	75	52	79	58	80	63	68	50
10	.....	.....	.....	.....	*23	15	26	10	19	5	38	23	56	40	60	46	80	54	78	62	77	60	67	48
11	.....	.....	.....	.....	27	16	16	2	38	19	45	29	56	37	55	50	82	59	75	62	77	60	71	58
12	.....	.....	.....	.....	22	12	24	6	34	25	43	31	42	32	64	51	73	59	75	57	76	60	73	54
13	.....	.....	.....	.....	33	14	41	17	23	15	38	26	47	33	69	44	71	51	77	57	76	58	73	59
14	.....	.....	.....	.....	25	39	47	31	26	9	45	31	50	38	61	41	73	48	86	64	65	61	62	45
15	.....	.....	.....	.....	47	26	25	17	33.5	19	43	33	52	38	64	43	75	49	91	72	73	59	58	39
16	.....	.....	.....	.....	33	18	46	21	35	24	50	34	52	37	64	46	83	60	81	66	82	63	71	51
17	.....	.....	.....	.....	32	22	49	32	42.5	31	38	30	44	37	63	52	80	64	73	64	75	60	64	47
18	.....	.....	.....	.....	28	19	33	24	36	24	42	27	47	36	64	47	74	55	67	58	65	59	72	48
19	.....	.....	.....	.....	33	22	28	19	45	34	49	34	50	37	69	43	91	60	.....	.....	77	59	68	57
20	.....	.....	.....	.....	37	24	35	13	23	25	39	32	56	37	63	45	89	69	78	64	75	64	61	45
21	.....	.....	.....	.....	35	23	40	32	33	20	38	30	44	37	60	45	79	62	78	60	68	63	61	40
22	.....	.....	.....	.....	23	5	38	26	22	14	43	30	48	35	67	47	74	56	81	62	76	65	62	39
23	.....	.....	.....	.....	29	1	29	16	18	6	45	26	53	38	73	56	69	58	87	63	85	63	68	50
24	.....	.....	.....	.....	14	2	21	14	18	2	30	24	56	37	79	56	65	50	91	69	67	51	70	60
25	.....	.....	.....	.....	12	— 2	28	17	33	14	25	18	52	34	77	61	73	51	84	66	73	55	66	57
26	.....	.....	.....	.....	13	— 2	27	10	36	22	35	24	49	37	76	56	77	50	87	71	77	58	72	61
27	.....	.....	.....	.....	14	3	27	18	32	21	32	21	53	37	70	53	80	57	85	71	79	60	76	55
28	.....	.....	.....	.....	28	— 5	33	21	36	29	42	24	63	38	80	58	87	64	80	70	76	58	77	62
29	.....	.....	.....	.....	27	15	22	— 3	.....	.....	48	37	63	45	82	65	80	65	83	72	72	58	76	67
30	.....	.....	.....	.....	24	7	21	—14	.....	.....	46	38	63	47	70	54	80	67	88	70	78	65	71	45
31	.....	.....	.....	.....	32	14	32	10	.....	.....	48	36	.....	.....	65	43	.....	.....	86	67	82	63	.....	.....
Range							62°		45°		41°		31°		47°		45°		36°		39°		46°	

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Maximum, minimum, and mean temperature—Continued.

NEW YORK CITY.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	69	55	60	45	36	16	36	22	31	19	44	27	54	34	64	42	74	50	81	68	85	72	87	69
2	64	48	62	40	46	30	37	19	28	2	33	22	64	60	54	41	82	50	86	68	85	71	79	64
3	65	51	48	42	44	30	46	30	37	10	38	21	64	38	43	38	65	50	94	70	89	72	77	62
4	70	51	54	40	42	33	41	29	50	35	31	22	54	39	65	38	75	53	85	71	88	67	83	63
5	64	53	51	40	40	28	45	21	42	31	39	11	50	36	69	44	86	60	79	70	82	66	86	70
6	64	52	53	50	44	30	40	24	41	27	34	13	44	36	61	48	82	62	80	68	81	65	73	61
7	75	61	58	46	42	31	31	17	41	30	39	21	51	36	62	46	77	61	75	60	84	64	70	56
8	71	61	57	43	44	35	36	23	45	33	47	.....	55	40	50	43	72	54	74	65	82	70	73	59
9	70	53	56	39	40	15	32	29	40	11	.....	.....	50	32	50	42	81	55	78	64	80	66	70	59
10	65	46	57	37	26	14	26	19	31	11	34	26	60	39	56	44	82	60	79	67	80	67	67	56
11	72	51	51	40	32	19	15	8	40	19	46	32	60	42	56	41	81	66	78	64	78	68	71	60
12	59	43	59	40	31	12	28	2	40	25	43	24	45	32	.....	.....	78	61	76	60	78	64	76	58
13	58	40	51	40	33	12	45	22	33	15	45	27	50	32	73	50	70	57	78	64	78	62	76	59
14	53	43	56	47	41	.....	50	33	29	14	50	30	51	38	58	42	71	55	88	65	67	63	66	51
15	56	41	45	32	47	30	34	24	34	20	47	35	54	40	65	43	70	60	89	.....	72	62	62	45
16	65	46	43	30	42	28	52	29	37	25	46	32	46	36	65	42	83	64	80	70	81	66	74	54
17	58	42	43	24	39	28	54	31	49	32	46	30	40	31	65	49	84	68	80	68	75	63	70	.....
18	60	55	41	30	39	27	.....	.....	50	27	48	31	38	44	56	42	74	63	75	61	69	63	75	55
19	63	45	41	30	38	26	30	15	42	36	52	41	50	40	67	49	91	69	72	61	78	65	70	58
20	53	36	43	30	41	25	36	22	42	31	.....	.....	55	32	60	48	90	73	78	64	76	66	63	51
21	66	43	35	25	36	26	39	33	37	27	41	27	46	39	56	48	82	65	80	63	74	67	61	47
22	69	43	40	32	20	2	40	33	30	14	43	30	39	34	63	48	69	60	83	55	81	66	64	52
23	66	49	44	33	38	6	33	24	21	5	51	31	54	34	72	54	67	59	86	66	89	68	70	58
24	51	43	48	33	17	10	34	20	21	− 4	38	25	53	.....	82	56	63	59	90	70	71	55	70	58
25	56	49	48	33	22	5	29	17	36	13	34	21	44	38	81	58	72	50	90	74	74	56	66	60
26	63	50	46	30	22	5	27	14	41	26	39	20	50	38	76	58	75	59	90	72	78	65	78	54
27	67	51	50	35	22	6	30	23	32	26	38	21	55	37	68	55	80	58	78	69	78	63	77	56
28	62	45	36	26	23	8	29	22	37	25	46	19	60	40	82	60	87	65	81	69	79	62	76	63
29	55	42	35	15	25	14	22	0	.....	.....	50	38	56	45	80	68	87	66	84	71	76	63	78	67
30	52	40	35	11	28	12	20	2	.....	.....	53	38	.....	44	72	58	80	68	90	70	80	66	62	52
31	54	40	.....	.....	38	19	31	2	.....	.....	51	41	.....	.....	64	51	.....	.....	88	70	84	66	.....	.....
Range	30°		51°		45°		54°		54°		42°		33°		44°		41°		39°		34°		42°	
Monthly means	54°.1		40°.8		27°.7		28°.5		29°.3		35°.7		46°.3		57°.6		68°.9		73°.9		71°.4		63°.4	

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Maximum, minimum, and mean temperatures—Continued.

OMAHA, NEBR.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	.....	.....	.....	.....	.....	.....	29	17	4	−11	36	23	47	34	51	41	74	51	78	64	85	70	80	63
2	.....	.....	.....	.....	.....	.....	29	20	24	− 4	26	− 4	65	29	55	42	79	65	84	65	75	62	82	55
3	.....	.....	.....	.....	.....	.....	28	12	43	15	22	− 3	74	43	64	40	70	57	91	68	78	53	90	67
4	.....	.....	.....	.....	.....	.....	29	9	40	19	34	5	65	48	66	44	77	55	94	65	81	59	75	61
5	.....	.....	.....	.....	.....	.....	23	9	46	28	57	23	54	40	72	51	83	56	82	64	85	70	72	45
6	.....	.....	.....	.....	.....	.....	28	12	52	28	65	42	50	33	72	53	85	61	83	64	90	68	70	53
7	.....	.....	.....	.....	.....	.....	39	6	45	32	59	39	40	30	66	54	83	63	81	69	85	68	63	45
8	.....	.....	.....	.....	.....	.....	11	− 2	38	18	59	32	36	25	56	45	76	68	81	60	84	70	70	43
9	.....	.....	.....	.....	.....	.....	5	− 9	50	25	49	33	51	27	54	39	72	57	86	68	87	72	78	52
10	.....	.....	.....	.....	.....	.....	15	−11	48	30	55	39	56	38	65	39	77	53	77	63	89	70	89	58
11	.....	.....	.....	.....	.....	.....	.....	.....	35	20	42	32	50	31	75	37	82	57	77	62	89	71	91	65
12	.....	.....	.....	.....	.....	.....	41	25	32	11	50	22	65	35	86	44	83	62	86	64	80	70	67	50
13	.....	.....	.....	.....	.....	.....	37	23	36	22	62	32	62	50	74	45	85	62	91	66	89	76	60	39
14	.....	.....	.....	.....	.....	.....	35	21	49	22	70	47	56	32	62	43	88	62	87	75	91	76	77	45
15	.....	.....	.....	.....	.....	.....	35	2	48	34	49	33	40	30	53	41	87	65	92	73	85	60	73	55
16	.....	.....	.....	.....	.....	.....	6	− 8	49	29	56	24	42	33	56	46	88	65	92	74	75	53	71	51
17	.....	.....	.....	.....	.....	.....	9	−13	57	34	67	43	52	33	61	49	90	66	82	69	84	54	88	64
18	.....	.....	.....	.....	.....	.....	22	− 3	53	21	57	33	61	34	60	51	90	66	70	57	90	60	55	44
19	.....	.....	.....	.....	.....	.....	43	14	46	17	52	25	57	33	56	47	83	63	80	51	90	64	60	35
20	.....	.....	.....	.....	.....	.....	46	28	39	0	41	17	58	42	72	43	87	64	81	54	86	67	65	57
21	.....	.....	.....	.....	.....	.....	41	31	32	− 3	42	26	70	43	75	56	.....	.....	83	58	79	62	65	56
22	.....	.....	.....	.....	.....	.....	37	14	.....	.....	72	32	50	30	76	56	80	67	87	64	87	69	67	45
23	.....	.....	.....	.....	.....	.....	17	2	16	− 2	35	15	44	30	74	53	85	73	92	67	89	64	74	50
24	.....	.....	.....	.....	.....	.....	15	− 5	22	1	36	18	39	26	79	57	89	69	94	71	90	67	55	47
25	.....	.....	.....	.....	.....	.....	20	3	35	8	20	2	54	27	68	50	90	74	84	67	87	71	69	58
26	.....	.....	.....	.....	.....	.....	24	6	37	10	31	2	60	34	75	58	92	78	83	62	87	64	69	52
27	.....	.....	.....	.....	.....	.....	15	− 9	22	6	55	23	58	34	74	53	93	72	84	64	88	64	71	52
28	.....	.....	.....	.....	.....	.....	− 6	−20	28	3	53	36	66	45	82	63	.....	.....	81	62	92	69	63	41
29	.....	.....	.....	.....	*30	12	17	−11	.....	.....	61	28	66	43	85	61	76	61	88	65	90	70	53	30
30	.....	.....	.....	.....	33	21	35	11	.....	.....	56	38	59	47	63	51	85	59	86	63	98	73	66	43
31	.....	.....	.....	.....	24	3	26	− 7	.....	.....	59	35	.....	.....	68	49	.....	.....	.....	.....	90	70	.....	.....
Range							669		699		750		493		409		439		439		459		613	

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Maximum, minimum, and mean temperatures—Continued.

OSWEGO, N. Y.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1					*35	25	34	24	26	7	33.5	22	49	31	59	40	77	48.5	80	68	80	67.5	77	61
2					44	28	37	20	26	6	34	27	50.5	38.5	55	38	66	48	88	65	87	68	72	61
3					39	33	46	35	35	8.5	29	7	43.5	30.5	42	36	81.5	54	80	70	77.5	61	79	54
4					36	32	38	26	45	32	18.5	5	43.5	33	59	35	85.5	56	82	63	79	61	78	63
5					38.5	32	34	25	35	23	24	8.5	48	35	60	41	73	50.5	78	58	76	55	74	58
6					37	27	31	23	45	23	33.5	2	49	38	61.5	38	73	48	68	53	82	55.5	60.5	46.5
7					39	28	25	18	.....	.....	49	22	52.5	35	66	42	58.5	48	73	50	79	68	66	45
8					44	35	35	19	39.5	24	49	30	45	35	60	51	66	46	80	58	80	61	64.5	51
9					38	11	27.5	14.5	25	8.5	33	20	54	36	62.5	46	74	51	72	57	76	66	70.5	46
10					22	12.5	13	6.5	17	5	38	23.5	51	36.5	63.5	50	85	54	75	54.5	72	56	73	55
11					22	16.5	18	6.5	40.5	13	45	31	60	38	56	41	68.5	49	70.5	56	78.5	55	77	55
12					19	10	23	16	30	14	36.5	29	51	39	64.5	41	65	48	72	53	74	60	83	60
13					29	28	44.5	22	15.5	4	39	24	45	36	61	38	83.5	47	86	58	69	52.5	74	51
14					35	31	44.5	19.5	30	4.5	40	29	45	35	50	35.5	84	57	86	71	73	56	53	48
15					41	25	47	18	32.5	22	45.5	34	51	36	51	38	79	61	83	65	71.5	56.5	62	43
16					34	23.5	52	37	41	27	47	29	58	36.5	56	46	80	61	76	61	73	58	62	53
17					32	20	52	12	33	25	36	28.5	50	36	53.5	41.5	72	52	83	66	71	53	60	44
18					31	16	17	10.5	41.5	17	41	28	49	37	61	43	83.5	50	86	62	68.5	58	80	57
19					30	25	20	10	45	32	46	32.5	45	35	63	45	89	68	73	56	75	58	72	53
20					41	27	34	9	33	20	41	37.5	41.5	32	73.5	50	81	52	64	50	81	56.5	.....	.....
21					28	22	36	22.5	32	18	41	37.5	43	30	62.5	50	70	50	75	60	81	61.5	60	47
22					21	2.5	35.5	22	19	12.5	34	27.5	43	31.5	77	50	71.5	53	86	58	81	65	66	44
23					22	9	22	8	15	3	40	20	41	29	83.5	59	78.5	54	86	65	74	52	61	53
24					12	— 1	22	11	20	5	22	9	45	34	.....	.....	82	63	78	66	62	50	63	43
25					8.5	— 4.5	21.5	14.5	29.5	23.5	31	17	45	33	65.5	48	76	57	88	64	69	54	67	53
26					8	2	27	16.5	31.5	21	37	19	42.5	34	82	53.5	88	57	79.5	66	70	51	71	53
27					13	5	29	19.5	37	23	29	12	50	34.5	86.5	64	86	64	78	67	71	52.5	83	60
28					24	8	26	5	30	24	47.5	14.5	52.5	37	75	54	80	63	83.5	63	72	57	85	66
29					23	17	11	— 2	.....	.....	44	33	55	35.5	82	47	79.5	64	85	64	82.5	55.5	75	56
30					28	15	24	— 4	.....	.....	36.5	31	55	40	52	41	90	68	80	68	82	60	56	43
31					29	20	29	24	.....	.....	45	31	.....	.....	65	40.5	.....	.....	86.5	64	75	62	.....	.....
Range					48°.5		56°		42°		47°		31°		51°.5		44°		38°		37°		49°	
Monthly means					23°.9		23°.7		24°.3		50°.2		42°.6		53°.1		65°.3		70°.4		66°.2		60°.8	

* Station supplied with self-registering maximum and minimum thermometers December 1, 1872.

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Maximum, minimum, and mean temperatures—Continued.

PEMBINA, DAK.

Day of month.	1872.						1873.																	
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	.....	.....	*36	30	15	5	.....	.....	.....	.....	.....	−12	.....	27	.....	33	.....	56	71	48	73	43	72.5	44
2	.....	.....	40	30	25	11	14	22	.....	.....	.....	−25	.....	32	.....	32	.....	50	82	59	72.5	58	69.5	45
3	.....	.....	41	31	12	− 1	11	− 8	.....	.....	.....	−40	.....	20	.....	38	.....	47	76	51	74.5	46.5	67	53
4	.....	.....	42	30	14	4	− 3	−26	.....	.....	.....	−20	.....	35	.....	33	.....	49	63	55	66	62	64	43
5	.....	.....	41	34	24	9	− 2	−36	.....	.....	.....	5	.....	31	.....	46	.....	49	65	39	66.5	69	57	33
6	.....	.....	37	26	19	10	15	− 1	.....	.....	.....	9	.....	30	.....	44	.....	57	76	38	80	59	53	41
7	.....	.....	40	31	36	10	10	−10	.....	.....	.....	0	.....	22	.....	41	.....	58	66	50	73	50.5	60	34
8	.....	.....	40	26	10	−16	−15	−22	.....	.....	.....	− 6	.....	20	.....	32	.....	49	70	40	81	63	69	40
9	.....	.....	55	34	3	−10	− 9	−23	.....	.....	.....	9	.....	18	.....	32	.....	46	69	48	82.5	57	69	42.5
10	.....	.....	34	17	14	− 3	− 1	−22	.....	.....	.....	11	.....	23	.....	31	.....	44	69	34	82	53	74.5	50
11	.....	.....	26	10	11	−21	24	− 3	.....	.....	.....	− 3	.....	18	.....	29	.....	41	82.5	48	80	50	56	41
12	.....	.....	22	2	(†)	.....	18	8	.....	.....	.....	−10	.....	31	.....	33	.....	60	85	61	80	61	49	39
13	.....	.....	21	3	.....	.....	8	− 4	.....	.....	.....	12	.....	34	.....	23	.....	55	76	53	83.5	67	57	30
14	.....	.....	23	13	.....	.....	(†)	.....	.....	.....	.....	28	.....	18	.....	31	.....	50	73	46	74	57	66	38
15	.....	.....	24	18	.....	.....	.....	.....	.....	.....	.....	15	.....	19	.....	43	.....	49	78	58	67	49	58	34
16	.....	.....	28	12	1	−34	.....	.....	.....	.....	.....	2	.....	21	.....	47	.....	46	75	63	74	54	58	25
17	.....	.....	17	2	0	−34	.....	.....	‡	10	.....	14	.....	27	.....	44	.....	67	73	55	73	48	50	35
18	.....	.....	17	− 1	− 7	−36	.....	.....	.....	− 1	.....	15	.....	28	.....	43	.....	60	74	48	77	56	49	32
19	.....	.....	14	− 3	−11	−34	.....	.....	.....	− 6	.....	−10	.....	24	.....	45	.....	55	81	54	76	47	58	25.5
20	.....	.....	16	− 7	−19	−40	.....	.....	.....	−30	.....	−12	.....	20	.....	47	.....	45	82	54	75	55	51	32.5
21	.....	.....	27	10	− 6	−41	.....	.....	.....	−32	.....	− 8	.....	19	.....	48	.....	58	84	63.5	66	41	51	38
22	.....	.....	32	22	− 6	−34	.....	.....	.....	−29	.....	− 2	.....	20	.....	52	.....	58	70	50	66.5	35	57.5	38
23	.....	.....	27	13	−24	−42	.....	.....	.....	−11	.....	−12	.....	22	.....	54	.....	55	78	46	74	53	63	29
24	.....	.....	19	6	−15	−51	.....	.....	.....	4	.....	− 6	.....	21	.....	54	.....	49	79	62	67	52	51	41
25	.....	.....	16	− 1	−11	−33	.....	.....	.....	3	.....	−13	.....	27	.....	50	.....	63	82	56	67	45	54	39
26	.....	.....	14	−24	−20	−38	.....	.....	.....	14	.....	−19	.....	24	.....	46	.....	63	81	48.5	72	47.5	54	36
27	.....	.....	− 6	−30	(†)	.....	.....	.....	.....	0	.....	10	.....	28	.....	49	79	53	77	54	74	54	44	31
28	.....	.....	− 4	−22	.....	.....	.....	.....	.....	−15	.....	12	.....	30	.....	45	77	66	72.5	53	74	57.5	49	32
29	.....	.....	10	−16	.....	.....	.....	.....	.....	.....	.....	3	.....	31	.....	36	76	56	70.5	46	74	49	44	33.5
30	.....	.....	22	6	.....	.....	.....	.....	.....	.....	.....	−20	.....	36	.....	34	70	55	73	53	69	39	41	30
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	−13	.....	.....	.....	43	.....	.....	73	53	74	48	.....	.....

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Maximum, minimum, and mean temperatures—Continued.

PUNTA RASSA, FLA.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	87	72	80	66	71	44	76	50	68	52	73	53	.....	67	.....	72	.....	72	.....	79	.....	75	.....	78
2	83	70	83	68	75	57	74	61	74	56	76	63	.....	71	.....	76	.....	72	.....	76	.....	73	.....	78
3	83	69	75	62	76	59	76	64	74	61	65	50	.....	70	.....	69	.....	72	.....	77	.....	74	.....	76
4	86	71	82	62	77	58	80	65	76	62	53	44	.....	67	.....	63	.....	73	.....	76	.....	74	.....	76
5	85	73	78	70	75	59	75	66	.....	.....	62	38	.....	70	.....	64	.....	73	.....	75	.....	74	.....	77
6	80	73	83	69	80	60	66	58	.....	.....	68	44	.....	65	.....	69	.....	76	.....	75	.....	76	.....	72
7	85	73	83	70	76	61	68	56	.....	.....	68	48	.....	65	.....	64	.....	76	.....	77	.....	72	.....	73
8	86	74	82	72	72	59	62	53	70	54	70	52	.....	66	.....	67	.....	74	.....	76	.....	74	.....	74
9	87	74	79	73	69	58	69	50	63	52	72	55	.....	70	.....	68	.....	73	.....	73	.....	75	.....	73
10	87	73	79	70	71	49	65	50	69	47	72	55	.....	67	.....	71	.....	72	.....	73	.....	75	.....	74
11	85	72	83	68	74	62	58	41	74	57	75	58	.....	68	.....	73	.....	75	.....	77	.....	74	.....	77
12	85	71	80	67	57	43	66	45	70	65	72	59	.....	67	.....	71	.....	75	.....	77	.....	75	.....	75
13	84	73	79	65	60	35	72	54	71	63	75	63	.....	57	.....	66	.....	76	.....	74	.....	77	.....	76
14	81	64	82	68	71	46	76	56	79	61	73	58	.....	61	.....	71	.....	79	.....	73	.....	81	.....	76
15	80	58	76	54	76	55	78	62	79	65	76	59	.....	67	.....	77	.....	80	.....	71	.....	77	.....	75
16	82	62	57	43	78	60	71	62	85	69	74	59	.....	69	.....	75	.....	78	.....	75	.....	77	.....	74
17	84	67	66	42	77	63	63	59	71	63	76	61	.....	59	.....	73	.....	76	.....	75	.....	71	.....	73
18	85	69	73	55	77	63	58	50	76	57	77	62	.....	62	.....	72	.....	75	.....	75	.....	73	.....	77
19	84	68	74	55	76	63	53	44	77	64	79	63	.....	59	.....	72	.....	77	.....	77	.....	73	.....	78
20	85	68	65	54	73	62	59	37	78	63	78	66	.....	55	.....	75	.....	76	.....	69	.....	75	.....	77
21	86	69	79	51	70	61	67	45	76	69	68	60	.....	61	.....	72	.....	75	.....	73	.....	76	.....	75
22	75	72	71	63	63	52	73	58	72	67	74	54	.....	62	.....	70	.....	75	.....	73	.....	75	.....	76
23	84	74	74	56	73	52	69	62	76	55	78	58	.....	63	.....	73	.....	75	.....	73	.....	74	.....	76
24	79	70	79	59	76	60	64	53	67	53	76	67	.....	69	.....	72	.....	73	.....	74	.....	75	.....	78
25	81	66	82	65	69	61	59	44	71	53	76	60	.....	69	.....	73	.....	73	.....	72	.....	76	.....	76
26	78	65	81	66	67	64	68	51	76	68	71	60	.....	62	.....	72	.....	72	.....	76	.....	76	.....	75
27	80	65	75	69	61	41	67	63	77	67	72	50	.....	64	.....	67	.....	74	.....	76	.....	76	.....	73
28	76	61	71	64	63	38	70	65	70	55	81	59	.....	68	.....	69	.....	75	.....	71	.....	77	.....	75
29	80	60	65	55	68	50	73	65	.....	.....	81	70	.....	74	.....	77	.....	73	.....	74	.....	77	.....	76
30	80	65	57	37	72	52	72	66	.....	.....	(*)	54	.....	73	.....	70	.....	81	.....	75	.....	76	.....	77
31	81	64	.....	.....	76	56	69	61	.....	.....	.....	61	.....	.....	.....	71	.....	.....	.....	77	.....	75	.....	.....
Range	29°		46°		45°		43°		32°		43°		.....		.....		.....		.....		.....		.....	
Monthly means	75°		68°.3		63°.5		62°		66°.4		65°.2		72°.8		78°.8		80.6		80°.9		80°.5		80°.1	

* Maximum thermometer out of order.

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Maximum, minimum, and mean temperatures—continued.

ROCHESTER, N. Y.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	55	42	52	32	26	16	27	15	19	7	33	14	47	32	60	40	74	45	80	66	80	69	77	59
2	60	40	50	36	42	20	39	11	11	− 5	30	24	48	37	53	36	68	51	81	66	83	64	73	52
3	69	45	45	39	41	29	45	35	32	10	24	7	48	36	42	36	80	55	82	70	77	65	78	51
4	59	38	52	38	35	25	35	19	46	29	10	4	45	30	62	34	85	63	83	67	73	59	81	61
5	81	45	49	34	34	24	30	18	30	23	20	0	48	34	57	46	79	57	84	63	74	51	75	56
6	80	58	51	42	34	26	26	17	45	28	38	2	51	40	58	40	78	55	71	54	83	54	62	49
7	60	48	46	34	32	24	24	16	48	27	55	36	57	36	67	42	65	50	75	48	78	64	58	45
8	57	42	45	37	39	16	36	17	48	21	.....	.....	47	35	51	45	71	49	71	57	78	64	63	48
9	79	38	44	36	36	10	17	6	21	5	30	18	59	33	61	44	78	51	72	56	75	63	70	46
10	59	40	49	34	20	9	6	− 1	19	6	35	19	50	37	60	40	82	58	73	57	75	65	73	52
11	45	33	55	43	24	16	9	− 1	40	19	38	25	60	41	59	46	69	55	70	55	77	58	80	55
12	53	33	51	35	23	12	21	6	26	13	32	25	50	40	63	41	68	49	75	51	76	62	85	60
13	53	44	45	31	26	15	44	21	13	6	37	23	57	39	57	39	80	45	87	62	67	54	73	49
14	47	40	43	28	35	26	43	20	25	7	45	30	54	38	54	33	78	59	84	70	69	56	51	40
15	44	35	33	23	32	16	39	16	29	18	52	34	48	37	56	39	79	63	83	69	73	57	58	38
16	50	34	30	23	31	20	55	39	32	26	52	28	52	36	61	47	83	60	74	62	72	56	61	47
17	55	32	34	21	31	19	49	12	35	25	37	27	45	32	59	45	70	54	83	64	70	49	61	39
18	53	43	33	25	25	16	12	8	48	23	38	29	44	33	62	41	82	50	82	69	65	57	85	66
19	48	37	33	24	26	16	12	7	45	31	46	32	44	34	64	41	88	64	74	59	72	57	71	49
20	52	27	30	19	38	19	26	8	31	19	39	28	44	30	70	47	83	61	74	55	82	57	53	43
21	75	43	33	20	.....	.....	35	26	31	11	30	24	45	30	65	52	77	54	77	56	81	62	60	38
22	72	48	36	30	11	− 9	35	23	14	5	34	26	42	31	74	52	65	57	81	57	80	67	65	41
23	52	38	38	31	15	0	25	10	9	− 5	37	21	46	28	84	61	74	57	84	60	72	58	61	51
24	50	32	47	35	5	− 3	18	12	14	− 7	21	13	47	35	74	59	71	63	83	60	62	50	64	43
25	53	44	58	33	4	− 3	.....	.....	23	14	24	14	47	30	72	51	79	59	87	64	68	55	68	49
26	54	48	36	31	8	0	22	7	30	22	34	18	44	32	81	54	84	59	75	65	69	55	73	47
27	51	46	35	20	17	3	27	21	29	17	27	11	52	31	82	68	85	61	77	63	70	55	84	64
28	47	40	24	19	19	10	21	− 2	26	11	46	19	52	36	73	61	80	67	80	62	77	59	86	65
29	50	30	20	12	19	15	1	− 9	.....	.....	45	34	55	37	79	51	82	65	83	63	80	57	75	52
30	56	35	24	10	20	13	23	−12	.....	.....	39	28	61	42	57	40	86	67	83	65	84	62	54	43
31	51	35	.....	.....	28	17	23	19	.....	.....	40	31	.....	.....	67	41	.....	.....	86	63	76	62	.....	.....

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Maximum, minimum, and mean temperatures—Continued.

SAN ANTONIO, TEX.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	89	59	68	50	77	44	55	43	56	35	78	63	84	62	86	60	83	70	95	76	92	74	94	75
2	90	58	70	54	70	50	69	41	42	34	62	45	90	50	92	48	84	65	94	77	93	74	94	74.5
3	90	60	78	50	77	61	64	48	56	40	55	38	87	67	85	55	85	68	93	76	93	75	93.5	73
4	89	62	85	66	70	63	73	47	72	50	54	43	85	70	75	61	82	68	95	76	93.5	71.5	94	74
5	91	62	72	58	73	59	39	37	70	54	60	50	87	69	82	61	88	69	94	75	96	73	93	73.5
6	74	63	56	48	67	59	47	34	73	46	68	56	92	68	87	60	91	68	95	73.5	95	73	93.5	74.5
7	79	65	61	52	62	56	67	41	68	41	74	59	74	44	96	56	84	67	94	74	93	72.5	87	73.5
8	78	61	64	51	72	54	57	41	65	43	83	50	57	42	96	59	90	73	95	74	92.5	72	87.5	68.5
9	85	63	72	52	60	42	60	32	65	41	72	64	77	34	78	58	89	72	94.5	72	91	72	87	66
10	89	67	77	53	51	43	59	33	70	54	85	64	82	42	87	58	90	70	96	76	87	73	87	72
11	78	55	78	60	43	38	63	49	66	47	88	65	83	56	87	62	87	73	97.5	73	92.5	72.5	82	73
12	79	58	75	50	50	33	68	56	70	37	87	62	84	50	78	64	89	75	96.5	74	92.5	72	86.5	71
13	87	50	70	35	50	36	68	58	71	47	81	62	74	64	93	68	92	76	97.5	76	93	73	81	72
14	85	57	51	30	61	49	75	58	75	58	86	64	74	59	96	74	91	76	94	77	94	73	84.5	66
15	84	57	49	26	56	40	63	40	70	50	85	64	74	48	98	71	88	71	96.5	76.5	95	74	87	60.5
16	84	60	56	28	46	36	52	32	76	41	70	58	80	36	96	73	78	73	92.5	74	93	73.5	88	60.5
17	82	62	53	30	43	37	57	30	79	45	80	59	82	41	93	73	86	71	85	74	88	75	90	60
18	83	59	60	28	46	44	56	29	82	60	77	58	87	53	94	75	89	71	84	71	87	73	91.5	59.5
19	83	57	67	32	60	41	69	42	77	60	71	60	78	64	92	72	87	70	90	70	90	72	92	65
20	75	58	63	30	53	31	73	43	82	64	74	58	92	57	90	73	83	73	86	69	91	71	93	65
21	83	60	70	40	57	30	74	45	70	41	80	50	95	54	94	72	85	76	88	70	96	74	94	73
22	74	56	67	36	43	25	72	49	71	38	73	59	96	61	95	69	86	76	88	69	92.5	72	94.5	75
23	74	54	70	38	55	35	60	31	60	35	76	53	73	55	92	73	90	76	87	71	95	72	92	75.5
24	65	53	79	64	37	22	57	28	66	50	88	59	73	46	94	73	91	75	88	72	92.5	73.5	92	72
25	70	59	72	65	45	20	67	47	81	64	58	39	76	45	93	63	90	74	90	72	90	72	92.5	70
26	83	59	73	44	50	31	57	34	77	51	64	31	76	47	84	64	91	73	92	73	88	71	91	74.5
27	81	66	64	49	37	18	56	31	70	45	69	41	86	64	82	65	92	72	91	76	93	71	85	75.5
28	81	72	67	38	35	30	21	18	66	53	90	58	97	69	83	60	94	74	93	76	94.5	72	92.5	76
29	75	55	58	33	55	37	41	16	.....	.....	87	52	95	70	91	76	96	73	95	73	92.5	73	85	65.5
30	71	50	68	33	69	55	52	22	.....	.....	92	66	94	65	80	64	94	73	90	71	83	73	84	63.5
31	71	45	.....	.....	62	45	68	30	.....	.....	88	64	.....	.....	82	70	.....	.....	92	75	93	74.5	.....	.....
Range	46°		57°		61°		59°		48°		61°		63°		50°		31°		28°.5		25°		34°.5	
Monthly means	69°.74		55°.50		48°.41		.....		.....		.....		.....		.....		.....		.....		.....		.....	

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Maximum, minimum, and mean temperatures—Continued.

SAINT PAUL, MINN.

Day of month.	1872.						1873.																	
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	.....	.....	47	31	34	19	19	0	− 3	−14	25	2	43	34	62	35	75	53	77	55	75	60	71	52
2	.....	.....	49	34	33	17	24	14	12	−20	25	3	48	27	64	45	75	60	81	56	69	54	77	49
3	.....	.....	44	36	22	13	19	3	22	2	6	−13	60	30	69	36	70	60	84	62	77	52	83	57
4	*63	49	41	32	35	13	20	− 4	22	4	17	−22.5	51	40	73	45	81	54	82	60	80	54	66	57
5	67	50	41	34	32	15	7	−11	29	− 1	31	12	53	37	73	50	85	59	70	54	84	57	56	46
6	57	41	48	31	(†)	.....	21	−14	38	8	46	27	45	32	73	54	91	62	77	57	81	60	60	48
7	60	34	46	34	.....	.....	30	3	34	14	45	18	39	31	72	55	87	70	76	60	84	61	65	42
8	73	47	41	27	.....	.....	5	− 9	13	0	35	12	39	27	60	40	81	67	77	55	86	61	63	52
9	58	34	52	35	.....	.....	− 5	−15	24	0	35	18	39	23	51	40	73	52	67	62	89	69	81	51
10	39	28	50	30	.....	.....	5	−16	35	17	42	26	45	30	51	42	76	52	70	52	81	68	86	59
11	55	23	37	20	.....	.....	17	2	19	5	31	6	50	34	62	40	76	52	76	51	82	61	52	46
12	54	38	36	22	.....	.....	26	12	19	− 2	35	8	54	32	70	35	80	62	78	59	82	59	51	35
13	43	30	37	26	.....	.....	21	15	22	8	45	24	62	42	52	32	79	58	91	58	82	62	59	35
14	51	26	33	19	.....	.....	28	15	26	3	48	30	61	49	55	35	69	53	82	66	71	66	65	48
15	56	37	25	16	.....	.....	29	2	37	18	37	25	51	41	65	44	87	61	85	58	71	59	62	38
16	51	29	26	11	.....	.....	9	−17	39	20	40	30	50	36	70	46	84	58	92.5	69	74	50	76	50
17	59	38	28	8	.....	.....	− 2	−25	41	27	50	30	55	34	69	53	89	64	77	64	68	57	51.5	40
18	61	33	18	0	.....	.....	4	−26	39	8	50	25	62	38	59	50	91	72	67	49	82	53	52	33
19	71	40	14	2	0	−19	23	0	26	1	36	15	53	30	70	40	82	62	78	46	81	44	59	30
20	67	44	17	2	− 3	−13	27	16	23	−10	27	5	46	34	60	46	85	57	78	57	89	64	59	30
21	57	38	27	17	−10	−23	26	20	0	−21	35	12	50	32	60	49	90	62	84	58	77	64	61	41
22	51	28	34	23	4	−10	24	3	6	−22	48	5	38	25	72	52	82	60	84	61	76	57	57.5	38
23	61	29	35	25	− 6	−27	10	− 1	7	−17	33	6	41	26	70	58	86	68	88	66	79	60	61	36
24	63	34	30	22	− 9	−31	10	− 9	19	− 9	26	12	40	31	69	56	86	67	87	69	85	67	55	47
25	61	37	26	16	4	− 9	10	−14	28	3	25	7	35	30	73	54	90	72	79	65	79	61	58	42
26	60	32	24	− 1	4	− 9	11	0	29	13	26	4	56	35	72	60	91	72	78	59	72	58	67	51
27	62	32	7	−13	− 2	−24	5	−10	29	16	40	8	67	37	69	56	86	69	80	57	78	60	51	41
28	59	41	− 1	−13	10	−18	− 6	−21	25	3	36	27	65	35	76	54	85	63	74	58	84	62	51	43
29	56	50	10	−14	17	7	7	−21	.....	.....	43	24	65	35	66	47	71	61	80	62	84	66	48	34
30	59	38	13	− 9	24	14	25	7	.....	.....	42	34	63	46	67	38	77	57	71	58	77	67	51	32
31	42	35	.....	.....	20	5	7	− 7	.....	.....	52	26	.....	.....	71	40	.....	.....	76	55	73	62	.....	.....

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Maximum, minimum, and mean temperature—Continued.

TOLEDO, OHIO.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	.....	.....	.....	.....	.....	.....	.....	.....	24	5	35	25	48	34	57	46	67	43	85	69	80	68	79	65
2	.....	.....	.....	.....	.....	.....	.....	.....	19	− 1	33	24	48	38	60	45	77	52	80	69	84	70	77	54
3	.....	.....	.....	.....	.....	.....	.....	.....	42	14	25	4	47	37	49	41	87	60	85	62	76	61	73	60
4	.....	.....	.....	.....	.....	.....	.....	.....	48	30	16	− 3	45	37	64	39	88	66	83	68	72	55	83	70
5	.....	.....	.....	.....	.....	.....	.....	.....	42	23	30	− 1	66	37	73	47	83	69	85	64	75	53	75	63
6	.....	.....	.....	.....	.....	.....	.....	.....	49	30	51	18	70	46	59	46	80	62	67	53	82	57	64	52
7	.....	.....	.....	.....	.....	.....	.....	.....	50	25	58	42	68	46	58	49	72	53	79	57	85	66	72	57
8	.....	.....	.....	.....	.....	.....	.....	.....	37	20	50	39	46	36	68	51	71	50	75	64	82	71	64	49
9	.....	.....	.....	.....	.....	.....	.....	.....	25	15	32	27	46	37	68	59	81	60	74	60	77	66	69	50
10	.....	.....	.....	.....	.....	.....	.....	.....	45	17	48	34	57	36	63	51	77	67	72	60	81	60	77	57
11	.....	.....	.....	.....	.....	.....	.....	.....	44	29	46	29	52	39	63	47	74	57	73	56	85	67	82	59
12	.....	.....	.....	.....	.....	.....	*41	14	23	16	37	27	44	37	69	49	69	61	76	53	78	64	84	66
13	.....	.....	.....	.....	.....	.....	48	38	20	16	48	26	59	37	61	50	77	56	89	64	73	58	68	49
14	.....	.....	.....	.....	.....	.....	38	31	30	20	55	31	57	41	54	42	85	61	90	69	75	58	54	40
15	.....	.....	.....	.....	.....	.....	56	29	35	20	59	44	53	41	53	45	84	61	83	71	76	58	70	45
16	.....	.....	.....	.....	.....	.....	55	20	35	26	43	35	48	39	64	41	89	66	89	67	74	64	68	52
17	.....	.....	.....	.....	.....	.....	19	7	36	22	46	28	53	40	62	49	76	57	91	70	71	59	74	50
18	.....	.....	.....	.....	.....	.....	15	9	57	35	46	36	53	40	62	50	87	60	84	66	76	53	84	65
19	.....	.....	.....	.....	.....	.....	22	6	48	30	51	36	55	38	57	52	91	72	74	58	82	37	72	46
20	.....	.....	.....	.....	.....	.....	35	19	35	23	45	27	49	32	78	54	85	67	73	59	87	66	57	38
21	.....	.....	.....	.....	.....	.....	40	32	33	11	36	26	50	33	79	55	85	56	77	56	87	69	60	42
22	.....	.....	.....	.....	.....	.....	35	27	18	4	43	26	37	31	85	64	88	66	82	60	86	63	54	47
23	.....	.....	.....	.....	.....	.....	23	14	4	− 4	47	34	42	31	84	68	92	67	86	64	77	64	62	44
24	.....	.....	.....	.....	.....	.....	29	15	24	− 3	34	23	48	30	82	62	.....	.....	87	67	78	57	68	44
25	.....	.....	.....	.....	.....	.....	28	17	34	16	28	21	45	32	71	54	75	67	90	69	88	69	66	56
26	.....	.....	.....	.....	.....	.....	29	6	31	16	25	20	54	36	84	59	84	67	84	70	76	64	81	49
27	.....	.....	.....	.....	.....	.....	26	5	31	20	34	14	65	40	84	68	89	71	78	65	70	59	86	68
28	.....	.....	.....	.....	.....	.....	20	− 1	34	20	53	27	53	46	78	63	84	66	80	69	73	58	83	70
29	.....	.....	.....	.....	.....	.....	10	−15	.....	.....	48	37	65	43	83	53	84	69	84	68	77	66	72	49
30	.....	.....	.....	.....	.....	.....	28	− 2	.....	.....	47	32	56	42	53	42	78	68	84	63	84	66	59	44
31	.....	.....	.....	.....	.....	.....	31	16	.....	.....	49	36	.....	.....	61	48	.....	.....	82	70	82	69	.....	.....
Range	.....	.....	.....	.....	.....	.....	22°.2		61°		62°		40°		46°		49°		38°		33°		48°	
Monthly means	.....	.....	.....	.....	.....	.....			26°.6		24°.9		45°.9		60°.2		74°		74°.0		72°.1		62°.6	

*Station supplied with self-registering maximum and minimum thermometers January 12, 1873.

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Maximum, minimum, and mean temperatures—Continued.

TORONTO, CANADA.

Day of month.	1872.						1873.																	
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	53	41	49	33	29	18	26	17	9	− 8	36	6	39	26	61	34.5	70	40	82.5	60.5	82.5	64.5	75	56
2	61	38	50	30	37	27	36	19	11	−10.5	33.5	22	43	33	47	37	65	49.5	75	66.5	81.5	62.5	75	51
3	65	39	50	34	34	26	41	27.5	31	8	26	1	46	34	49	38.5	68	49	81.5	63.5	77	59	72	50.5
4	58	38	50	33	29	28	31	20.5	43	26.5	10	− 2	41.5	31	61	32	82	52	83	62	73	58	76	62
5	64	45.5	48	34	35	23	33	21	32	22	23	− 6	38	33	57	39.5	80	49.5	85	56	74	54	72	53
6	70	51	50	37	32	24	26	12	40	24	34	6	42	33.5	55	39	74.5	54	69	52.5	81	52	61	46
7	60	44	45	31	36	23	28	17	37	20	43	25	42	34	56	44.5	68	48	74	48	80	63	57	48
8	57	38	47	35	40	20	38	13	40	14	41.5	22	40	35	48	42	72	50.5	74	58.5	78	62	63.5	43.5
9	66	40	46	30	22	5	19	− 1.5	15	2	28	14	38	34.5	53	39.5	70	46.5	76	55.5	75	55	65.5	44.5
10	56.5	33.5	47	32	20	4	4	− 4	22	− 6	33	18	49	32	61.5	44.5	68	49	65.5	55	78	55.5	70	52.5
11	45	34	52	42	25	8	14	− 4	38	17	39.5	28	51	32	59	41	74	52	70	47.5	72	57	76	50
12	51	31	50	30	24	4	27	1.5	21	8	33	21	50	36.5	60	38.5	66	47.5	72.5	52.5	74	57	79	55
13	50	41	45	29	30	21	38.5	25	15	− 1	37	21	58	38.5	54.5	34.5	65	43.5	70.5	52.5	68.5	50.5	67.5	45
14	46	33	46	25	38	28	37	19	18	8.5	42	24	56	30.5	56	30	70	50	79.5	54.5	76	58	56	37
15	45	30	37	22	37	15	39	17	26	2	45	35	51	39	57	38.5	78.5	55	85	66	72	57	55.5	33.5
16	49	30	33	20	26	13	46	25	33	21	40	26	48	38	61.5	42.5	83	54	72	61	72.5	50.5	61	39
17	44	30	37	20	23	11	26	6	34	22	38	24	38	31	63	40	67	56.5	84	50.5	71	46.5	58	36.5
18	55	35	32	22	27	14	9	− 2	35	20	33.5	29	42	32.5	62	40.5	78	48.5	80.5	64	74	54	74	53.5
19	44	32	30	22	26.5	12	18	− 2	38	25	43	27	48	32.5	64	44.5	89.5	57	73	54	74.5	58.5	65.5	45.5
20	50	25	29	18	33.5	19	26	16	27	13	38	26.5	45	27	56	43	76	56	70	51	79	57.5	55	38
21	63	37	34	18	20	0	32	25	33.5	10	31	24	44	26.5	63.5	46	81.5	49	78	54	78	58	59	36.5
22	63	45	37	26	11	−13.5	29	12	15	5	37	26	45	30	64	46.5	66	56	79	52	85	62.5	58	43.5
23	52	38	39	30	12.5	− 2	16	4	6	− 5.5	37	13	45	24	73	47	65	57	87	56	73	56.5	60	45
24	53	34	42	30	1	− 8	13	8	20	− 5	21	6	43	28.5	75	50.5	71	59	83	63	65	46	62	45
25	53	38	49	26	4	−12.5	15	− 3.5	27.5	17	21	14	45	25	69	48.5	72	56	81	57	69	55.5	62.5	47
26	52	47	39	24	3	− 3	23	0	28	15	22.5	11	47	29	71	50	72	53	74	60	72	58.5	65	42.5
27	51	45	33	17	14	−12	25	10.5	31	11	29	6	50	30	76	55	86	55.5	78	61	70	56	76	53.5
28	50	34	24	15	20	4	19.5	−13	31	4.5	38	10	52	31.5	72	54	79	60	75	55	77	60.5	77	62
29	47	33	23	8	21	4	3	−18	.....	.....	39	32	56	34	70	46	79.5	54.5	85	65	75	55.5	69	48
30	52	37	22	10	22	2	19	− 6	.....	.....	37	25	61	38.5	54	39.5	73	62	82	61	84	58	54.5	42.5
31	51	37			20	12	26	12			42	28.5			64	36.5			76	69	70.5	65		

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Maximum, minimum, and mean temperatures—Continued.

VIRGINIA CITY, MONT.

Day of month.	1872.						1873.																	
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	76	45	46.5	32.5	39	26	27.5	6	6.5	−21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	80	51	.....	.....
2	73	41	46	27.5	37	21	19	4	36	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	81	49	.....	.....
3	63	35	36	21	45	26	20	− 4	27	16.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	63	28	35.5	11.5	36.5	22	22	2	28	13.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5	59.5	33.5	38.5	12	30.5	14	34.5	19	33	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
6	70.5	33	51.5	11	34	13.5	40	31.5	35	9	.....	.....	.....	.....	.....	.....	.....	.....	83	40	.....	.....	.....	.....
7	75	40	59	40	43	27	37	5	29	12	.....	.....	.....	.....	.....	.....	.....	.....	81	57	.....	.....	.....	.....
8	61	34	59	18	43	25	26	4	28	3	.....	.....	.....	.....	.....	.....	.....	.....	71	51	.....	.....	.....	.....
9	42	22.5	28	11.5	31	14	36	17	33.5	15	.....	.....	.....	.....	.....	.....	.....	.....	70	44	.....	.....	.....	.....
10	69	25	24	11	22	7.5	40	22	31	10	.....	.....	.....	.....	.....	.....	.....	.....	69	50	.....	.....	.....	.....
11	66	37.5	31	10	25	3	40.5	22	34	13	.....	.....	.....	.....	.....	.....	.....	.....	78	51	.....	.....	.....	.....
12	68	38	23.5	− 1	33	14	37	26	29	15	.....	.....	.....	.....	.....	.....	.....	.....	57	39	.....	.....	.....	.....
13	69	36	8	− 9	36.5	18	28	18.5	27	11	.....	.....	.....	.....	.....	.....	.....	.....	60	43	.....	.....	.....	.....
14	69	40	2	−18	18	− 6	25	9	27	2.5	.....	.....	.....	.....	.....	.....	.....	.....	66	37	.....	.....	.....	.....
15	62	35	4	−19	18	− 6.5	34	6	35	13	.....	.....	.....	.....	.....	.....	81.5	42	64	49	.....	.....	.....	.....
16	63.5	35.5	12	− 8	19	− 2	41	30.5	27	19	.....	.....	.....	.....	.....	.....	81	53	63	45	.....	.....	.....	.....
17	69	43	23	− 9	16	6	35	22	21	4	.....	.....	.....	.....	.....	.....	79	47	82	44	.....	.....	.....	.....
18	70	40	32	8.5	8	− 7	40	20.5	15	− 8	.....	.....	.....	.....	.....	.....	72	45	82	58	.....	.....	.....	.....
19	66	43	38.5	17	16	− 8	47.5	36	19	−13	.....	.....	.....	.....	.....	.....	76	39	85	59	.....	.....	.....	.....
20	57	29	37	23	− 1.5	−15	42	27	33	7	.....	.....	.....	.....	.....	.....	80	42	84	54	.....	.....	.....	.....
21	42	19	33	18.5	28	−21.5	38.5	16.5	34	12	.....	.....	.....	.....	.....	.....	62	41	87	57	.....	.....	.....	.....
22	53	21	37	26.5	29.5	−18	25	9.5	33.5	6	.....	.....	.....	.....	.....	.....	46	31	88	56	.....	.....	.....	.....
23	62	24	34	11	30.5	−20	29	8	.....	(*)	.....	.....	.....	.....	.....	.....	58	24	86	59	.....	.....	.....	.....
24	61.5	24	18	2	42	9	29.5	11.5	.....	.....	.....	.....	.....	.....	.....	.....	67	23	79	40	.....	.....	.....	.....
25	50	34.5	25	1	38.5	26	29	11	.....	.....	.....	.....	.....	.....	.....	.....	72	56	85	50	.....	.....	.....	.....
26	49	28	24	0	39.5	16	33	− 9	.....	.....	.....	.....	.....	.....	.....	.....	64	38	76	48	.....	.....	.....	.....
27	35	24	35	16	38	25.5	− 9.5	−21.5	.....	.....	.....	.....	.....	.....	.....	.....	80	35	78	55	.....	.....	.....	.....
28	28.5	10.5	37	15	33	17	20	−21	.....	.....	.....	.....	.....	.....	.....	.....	71	45	87	54	.....	.....	.....	.....
29	32	8.5	49	30	24.5	10	34	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	86	59	.....	.....	.....	.....
30	38.5	20.5	43	32	16.5	3.5	22	− 7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	77	60	.....	.....	.....	.....
31	37	13	.....	.....	25	8	− 7	−22.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	86	53	.....	.....	.....	.....
Range	67°.5		78°		66°.5		70°		.....		.....		.....		.....		.....		.....		.....		.....	
Monthly means	43°.9		23°.6		18°.8		23°.4		15°.6		.....		.....		.....		.....		.....		.....		.....	

* No observations taken from February 22 to June 15, 1873.

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Maximum, minimum, and mean temperatures—Continued.

WASHINGTON, D. C.

Day of month.	1872.						1873.															
	October.		November.		December.		January.		February.		March.		April.		May.		June.		July.		August.		September.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	64	51	59	39	43	18	38	31	41	12	37	22	68	43	64	50	81	46.5	88.5	72	98	76	92.5	72
2	65	46	55	35	56.5	39.5	40	30	36	16	44	26	73	48	62.5	48	90	56	97	68.5	93	73.5	86	67
3	77	.....	55	43	46.5	34.5	51	36	44	16	30	11	71	44	60	40	87	57	101	77.5	92	72	84	62
4	72	59	55	40	40	29	49.5	30	63	42	20	4	70	47	65	43	90	60	93	73	86	68	88.5	74
5	77	55	58	34	42	25	41	32.5	52	35	27.5	- 9.5	70	46	74.5	50	86	71	91	71	83	64	92.5	71
6	82	66	62	50	53	27	47	26	48.5	30.5	46	11	70	46	75	49	90	66	84	68	90	61	76.5	61
7	74	59	62	48	46	31.5	38	18	42	36	58	26.5	74	48	58	47	80	66	87	62	93	70	77	59
8	64	50	57	42	48.5	30	36	20	54.5	34	63	41	82.5	53.5	55	48	81	56	80.5	64	92	73	80.5	60
9	70	44	53	34	41	19	41	21.5	40	19	69.5	42	87	59	67	49	86	63.5	81.5	63	90	73	73.5	52
10	75	50	57	31	25	16	35	12	41	16.5	51	37	67.5	44	74	53	81.5	66	88	63.5	83	70	71.5	58
11	54	43	61	38	39	18	26	12	55	35	60	40	66	50	66	56	80	71	84	69	88	65	77	56.5
12	60	36	65	41	29.5	21	37	21.5	46	31	49	33	51	41	74	51	80	65	88	61.5	81	66	81.5	56.5
13	61	46	55	37	39	21	49	26	31	21	48	35	61	41.5	83	58	82	59	88	72	78	64	83.5	60
14	53	41	52	43	51.5	26	51	37	37	21	58	37	68	46	68	49	83	52	97	73	77	63	63.5	52
15	58	38	46	32	51.5	35	43	36	41	20	70	43	71	43	75	52.5	77	69	91.5	73	81	65	68	44
16	69	49	37	28	44.5	30	64.5	37	40	32.5	65	38	51.5	41	75	52	92	67	96	73	87.5	66	80	55
17	65	44	40	26	46.5	32	61	32	48	33	51	38	45	30	70	52	92	73	97	76	78	64.5	72	57
18	64	52	45.5	28	40	30	32	24	53.5	28	64	31	62	41.5	74	45	94	67	96.5	72.5	82	66	77	62
19	59	43	50	22	37	27	28	21	54	36	65	41	59	43	64	55	94.5	72	92	71	81	69	78.5	60
20	59	37	45.5	26	44.5	31	40	23	51	32	50	35	62	39	61	55	94.5	76	84.5	64.5	78	68	63.5	50
21	69	37	40.5	18.5	42.5	23.5	46	34	45	32	41	31	56	44	59	53	88.5	61.5	85.5	64.5	87	73	66	44
22	71	49	42	29	40	3	41	31	38	28	42	33	71.5	43	70	59	96	66.5	93	63.5	88	74.5	69.5	46
23	67	55	51	38	41.5	18	33.5	27.5	27	11	68	35	45	38	83	61.5	81.5	67	91	64	90	70	77.5	62
24	55	49	58	32	27	6	33.5	25	25	1	63	29	52	37	91	62.5	82.5	65	93	71.5	77	61	73	60
25	66	50	63.5	44	15	5	32	18	35	19	35	29	52	38	91	62	77.5	61.5	97	70	88	57	78.5	59
26	67	54	52.5	36	19	11.5	38	21	45	27.5	40	32	54.5	36	88	64	86.5	57	94.5	78	89.5	69	81	63
27	66	49	48.5	24.5	19	11	40	30	43	29	43	25	62.5	39	90	66	88	69	93	79	79	69	81	61
28	56	45	49	24	23	13	42	21	33.5	21	61	27	65	43	94.5	71	86.5	72	92	.....	74.5	64	81	66
29	52	37.5	38	15	36	44	25	2.5	.....	.....	58.5	45	59	47	87	66	78	72.5	95	70	71	66	83.5	71
30	51	33.5	23.5	14	41.5	26.5	26	- 7	.....	.....	65	43	70	44	88	58	92	75	80.5	72	84	64	76	51
31	51	39	.....	.....	45	34	41	5	.....	.....	60	48	.....	.....	71	49	.....	.....	92.5	71	88	66	.....	.....

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Monthly and annual amounts of rain-fall, in inches, from October, 1872, to September, 1873, inclusive.

Stations.	1872.			1873.									Annual amounts.
	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	
Alpena, Mich	2.40	1.59	1.76	1.43	0.43	1.53	3.12	2.91	3.03	3.21	1.96	5.14	28.51
Augusta, Ga	1.36	3.90	3.48	5.03	4.16	3.65	2.00	8.63	3.12	3.34	5.36	3.27	47.30
Baltimore, Md	4.08	3.17	2.72	4.27	4.74	3.02	2.77	6.31	0.94	2.90	9.49	3.70	48.11
Boston, Mass	4.85	3.66	3.09	5.76	3.21	3.76	3.83	5.10	0.54	3.84	6.21	2.91	46.76
Breckenridge, Minn	2.17	1.03	1.14	1.63	2.21	1.81	2.11	2.33	4.17	2.78	7.20	0.38	28.96
Buffalo, N. Y	4.36	4.29	1.93	1.68	1.42	5.52	3.58	2.52	1.77	7.19	3.46	2.60	40.32
Burlington, Vt	3.05	2.75	1.35	2.18	0.36	1.54	1.43	1.46	1.35	4.83	2.21	2.09	24.60
Cairo, Ill	1.16	0.57	1.56	5.03	6.68	3.27	5.54	5.07	4.45	1.68	2.48	4.09	41.58
Cape May, N. J	3.28	2.71	2.65	6.79	7.61	3.07	3.95	3.29	0.93	0.82	7.33	5.53	47.96
Charleston, S. C	4.21	3.40	2.46	4.13	2.27	3.05	1.33	4.90	6.29	6.97	12.94	8.18	60.13
Cheyenne, Wyo	0.33	0.03	0.03	0.03	0.02	0.38	0.92	2.41	1.77	1.10	2.07	0.36	9.45
Chicago, Ill	0.65	1.06	0.19	2.56	0.47	0.89	6.12	7.20	1.44	4.04	1.58	2.53	28.73
Cincinnati, Ohio	3.33	1.12	2.43	2.66	3.76	2.36	2.89	3.50	3.58	3.94	4.69	2.24	36.50
Cleveland, Ohio	4.08	1.24	1.73	2.41	1.94	3.24	5.38	3.11	5.50	4.82	1.87	2.44	37.76
Corrinne, Utah	0.61	0.29	3.86	1.63	1.67	0.81	0.85	3.46	0.12	0.14	1.75	0.43	15.62
Davenport, Iowa	0.61	1.86	0.61	3.56	0.77	1.43	3.96	6.37	2.16	2.37	0.51	1.00	25.21
Denver, Colo	0.68	0.69	0.29	0.13	0.24	0.22	2.43	0.75	2.24	2.00	1.41	0.89	11.97
Detroit, Mich	1.60	0.67	0.69	3.20	0.32	1.79	4.74	3.50	5.18	3.38	0.19	3.28	28.54
Du Luth, Minn	0.42	2.48	0.48	0.75	0.93	2.29	0.30	3.89	9.90	8.50	2.45	5.16	37.55
Escanaba, Mich	0.47	3.11	0.50	0.56	0.36	1.89	0.35	2.93	4.88	3.33	1.87	5.45	25.70
Fort Benton, Mont	0.19	0.61	0.59	0.60	0.65	0.23	1.14	3.03	1.67	1.29	1.59	0.58	12.17
Fort Sully, Dak	0.02	1.28	0.57	1.00	0.29	0.49	1.06	3.17	3.23	1.86	2.66	0.07	15.70
Galveston, Tex	1.86	7.98	5.37	3.43	0.50	2.80	2.27	5.36	8.61	6.83	8.04	7.37	60.42
Grand Haven, Mich	0.84	2.02	.....	.....	0.91	1.62	2.24	5.42	4.15	3.25	1.95	2.30	.....
Indianapolis, Ind	1.07	0.80	2.10	4.50	2.85	3.48	5.91	3.89	3.70	11.28	1.32	1.76	42.66
Indianola, Texas	1.32	1.72	6.55	1.81	1.13	2.34	0.32	6.96	3.74	3.40	5.00	9.18	43.56
Jacksonville, Fla	6.37	1.71	4.81	3.86	0.50	5.20	0.56	5.36	8.41	7.75	6.21	10.67	61.50
Keokuk, Iowa	0.42	0.74	0.50	3.31	0.53	0.51	5.65	3.42	1.21	8.77	0.54	2.37	28.97
Key West, Fla	2.09	0.98	0.65	3.91	0.16	0.04	2.02	1.02	3.86	4.95	3.67	6.23	29.58
Knoxville, Tenn	0.82	3.69	6.68	3.85	12.42	5.38	2.82	4.46	5.94	4.34	2.87	3.79	57.06
La Crosse, Wis	.....	1.13	0.19	0.66	0.34	0.48	1.16	2.23	5.09	2.48	1.68	3.66	.....
Lake City, Fla	5.24	1.52	3.47	5.36	1.25	6.31	2.70	5.97	9.27	5.81	5.25	3.86	56.01
Leavenworth, Kans	2.06	0.06	1.34	3.62	1.03	1.75	5.07	5.38	3.15	2.04	2.40	3.64	30.94
Lexington, Ky	.....	1.21	3.53	2.53	4.05	3.73	2.88	6.05	4.54	3.37	2.94	1.60	.....
Louisville, Ky	3.92	0.56	2.58	2.93	5.42	3.39	3.05	5.73	3.87	3.43	3.04	2.50	40.42
Lynchburgh, Va	2.44	3.50	2.44	4.42	5.92	2.52	3.37	9.42	5.17	2.86	10.03	1.64	53.73
Marquette, Mich	0.61	1.48	0.45	0.43	0.23	0.97	1.12	1.64	4.25	6.73	1.26	4.29	23.46
Memphis, Tenn	3.23	1.67	3.47	5.85	8.98	3.44	4.87	4.82	6.36	0.82	4.53	3.53	51.57

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Monthly and annual amounts of rain-fall, in inches, &c.—Continued.

Stations.	1872.			1873.									Annual amounts.
	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	
Milwaukee, Wis	0.73	1.74	0.49	2.81	0.17	1.22	2.30	5.17	2.88	2.69	4.01	2.87	27.08
Mobile, Ala	2.77	5.65	3.70	4.16	3.15	3.86	0.88	11.47	9.87	8.75	10.35	8.07	72.68
Montgomery, Ala	0.53	5.73	4.08	4.97	9.97	4.51	5.57	10.25	11.08	4.17	2.56	2.38	65.80
Morgantown, W. Va	.....	.....	.....	.....	5.31	4.01	2.12	4.11	5.70	7.61	4.71	3.59	.....
Mount Washington, N. H	5.53	4.01	1.38	3.39	5.20	5.81	2.72	4.55	3.20	13.54	5.81	13.66	68.80
Nashville, Tenn	1.58	2.25	2.48	2.96	7.14	4.11	3.59	4.11	4.20	4.63	2.36	1.81	41.22
New Haven, Conn	.....	.....	.....	7.55	3.49	4.05	5.79	6.27	2.07	1.55	9.90	2.12	.....
New London, Conn	3.77	5.46	4.04	6.38	3.31	2.34	2.76	5.38	0.58	1.38	3.41	2.38	41.09
New Orleans, La	3.18	7.43	5.25	5.06	1.93	5.10	1.74	18.66	6.68	6.27	8.30	3.19	72.81
New York, N. Y	3.43	5.04	2.54	5.06	1.73	1.88	3.05	4.08	1.29	4.15	7.69	2.51	42.45
Norfolk, Va	9.89	3.10	5.69	4.68	6.66	2.03	1.79	5.01	4.61	2.74	7.45	7.13	60.78
Omaha, Nebr	3.89	0.87	0.11	0.64	0.02	0.44	3.83	5.59	5.86	4.27	1.60	1.86	28.98
Oswego, N. Y	5.91	1.91	1.07	1.35	0.28	5.47	2.62	1.41	1.91	3.71	2.46	2.39	30.49
Pembina, Dak	.....	0.84	.....	.....	.....	0.04	0.25	2.16	2.90	1.47	2.88	1.95	.....
Philadelphia, Pa	5.20	3.43	2.74	5.84	4.75	2.04	3.51	5.83	0.90	5.00	11.49	3.58	54.31
Pittsburgh, Pa	4.09	0.83	2.31	3.16	3.08	3.87	3.01	3.21	2.15	3.44	5.19	1.94	36.28
Portland, Me	3.55	4.27	2.54	4.42	0.93	2.87	2.79	2.80	1.60	3.52	2.63	4.03	35.95
Portland, Oreg	1.80	4.67	9.47	8.49	6.58	12.26	2.35	2.18	2.96	1.02	0.84	0.00	53.12
Punta Rassa, Fla	2.82	0.53	1.87	6.84	0.48	1.59	3.58	9.09	5.21	5.13	9.85	9.13	56.12
Rochester, N. Y	8.14	2.07	4.05	3.33	1.52	7.02	4.71	3.52	1.84	5.42	3.01	2.97	47.60
San Diego, Cal	0.00	0.00	1.44	0.34	4.15	0.11	0.10	0.01	0.00	0.00	1.95	0.00	8.10
San Francisco, Cal	0.11	2.66	5.95	1.58	3.94	0.78	0.43	0.00	0.02	0.01	0.08	0.00	15.66
Santa Fé, N. Mex	0.25	0.01	0.04	0.55	0.14	0.15	0.26	0.33	1.72	1.02	2.79	1.23	8.59
Savannah, Ga	3.85	2.43	2.29	3.50	0.99	4.37	4.37	5.12	4.64	5.44	5.45	4.03	46.48
Shreveport, La	3.41	1.39	7.03	3.13	7.47	2.67	1.94	4.58	7.94	3.31	1.59	2.31	46.77
Saint Louis, Mo	0.55	2.01	1.70	3.53	1.52	2.10	6.86	5.27	6.68	5.96	0.07	3.02	39.27
Saint Paul, Minn	0.52	1.91	.....	1.31	1.54	1.34	2.44	4.63	7.74	3.83	4.61	2.56	.....
Toledo, Ohio	1.45	0.78	2.22	3.63	1.16	2.51	4.45	2.57	2.32	3.41	2.26	2.37	29.13
Vicksaburgh, Miss	1.74	1.85	10.41	4.87	4.46	1.87	1.76	8.79	4.16	2.86	3.67	1.60	46.04
Virginia City, Mont	0.12	0.52	0.16	0.13	0.19	.....	.....	.....	0.71	.....	.....	.....	.....
Washington, D. C	4.83	2.75	2.49	3.73	4.69	3.03	3.19	5.91	1.63	4.30	6.83	3.48	46.16
Wilmington, N. C	2.53	3.37	4.10	4.13	5.55	1.68	1.75	8.63	3.60	4.93	7.42	2.97	57.96

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Statement showing how many times the wind was observed blowing from the eight cardinal points of the compass during each month and season of the year ending September 30, 1873, compiled from the local observations taken at the several stations of observation at 7 a. m., 2 p. m., and 9 p. m., (local time.)

Station.	Wind.	October, '72.	November.	December.	January, '73.	February.	March.	April.	May.	June.	July.	August.	September.	Spring.	Summer.	Autumn.	Winter.
Alpena, Mich	N.	5	1	3	4	1	5	5	5	3	4	6	2	15	13	8	8
	N. W.	29	16	25	17	1	12	13	15	5	10	11	19	40	26	64	43
	W.	12	23	22	18	28	24	17	10	16	21	14	19	51	51	54	68
	S. W.	7	25	24	9	9	4	2	3	8	7	3	8	9	18	40	42
	S.	12	9	14	24	13	13	8	7	5	6	5	16	28	16	37	51
	S. E.	17	10	2	9	8	17	4	18	16	22	19	13	39	57	40	19
	E.	3	1	0	7	10	2	20	14	22	11	14	6	36	47	10	17
	N. E.	3	2	0	3	6	2	9	9	6	3	6	2	20	15	7	9
	Calm.	5	3	3	2	8	14	12	12	9	9	15	5	38	33	13	13
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Augusta, Ga	N.	11	2	6	2	2	1	1	5	3	1	4	9	7	8	22	10
	N. W.	9	12	5	2	3	6	2	10	1	0	5	2	18	6	23	10
	W.	11	14	13	20	24	17	20	12	12	6	9	6	49	27	31	57
	S. W.	4	5	3	6	6	2	13	10	10	4	3	3	29	17	12	11
	S.	2	5	8	7	8	18	15	4	14	12	8	2	37	34	9	23
	S. E.	2	0	0	4	1	3	2	18	8	7	8	3	23	23	5	5
	E.	6	5	1	2	4	2	1	11	8	9	8	4	14	25	15	7
	N. E.	8	5	8	2	2	2	1	6	12	4	9	28	9	25	41	12
	0	39	41	50	51	34	38	35	17	22	50	39	33	80	111	113	135
	Blank.	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Baltimore, Md	N.	13	6	12	16	10	5	7	9	8	14	14	15	21	36	34	38
	N. W.	14	23	19	16	28	23	28	5	8	7	4	9	56	19	46	63
	W.	16	19	19	11	8	20	9	3	10	17	6	8	32	33	43	38
	S. W.	6	9	12	4	3	11	5	9	17	14	8	9	25	39	24	19
	S.	7	8	7	9	2	2	2	7	8	9	7	12	11	24	27	18
	S. E.	5	9	4	3	6	7	13	15	10	6	7	11	35	23	25	13
	E.	4	1	3	11	2	1	9	13	5	2	13	8	23	20	13	16
	N. E.	13	4	10	12	10	12	14	21	16	5	21	9	47	42	26	32
	0	15	11	7	11	15	12	3	11	8	19	13	9	26	40	35	33
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boston, Mass	N.	8	6	4	7	6	2	8	6	5	5	17	2	16	27	16	17
	N. W.	23	41	52	46	40	46	41	21	18	15	12	20	108	45	84	138
	W.	10	13	17	9	8	17	4	10	16	23	13	20	31	52	43	34
	S. W.	9	11	5	7	4	11	1	7	15	19	5	7	19	30	27	16
	S.	10	7	4	4	7	1	5	11	5	9	4	11	17	18	28	16
	S. E.	2	3	6	1	2	7	2	4	6	4	1	5	13	11	10	9
	E.	13	4	1	10	8	5	20	22	19	12	24	16	47	55	33	19
	N. E.	12	3	1	4	5	4	7	7	4	7	5	1	18	16	16	10
	0	5	2	3	5	4	0	2	5	1	8	12	8	7	21	15	12
	Blank.	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
Breckenridge, Minn	N.	7	9	13	19	6	17	42	23	16	17	18	12	82	51	28	38
	N. W.	23	44	28	30	26	29	11	6	18	12	5	30	46	35	97	84
	W.	10	7	15	4	9	4	4	1	2	5	4	5	9	11	22	28
	S. W.	1	3	4	0	5	2	1	9	8	3	3	12	14	7	9	
	S.	7	9	6	2	4	0	5	4	14	14	17	4	9	45	20	12
	S. E.	38	14	22	34	28	31	13	30	25	20	28	25	74	73	77	84
	E.	3	2	2	1	0	5	6	5	2	6	6	3	16	14	8	3
	N. E.	2	1	0	2	5	4	7	10	1	16	10	5	21	27	8	7
	0	2	1	3	1	1	1	1	5	4	0	2	3	7	6	6	5
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buffalo, N. Y	N.	9	1	0	3	0	2	4	0	2	1	6	3	6	9	13	3
	N. W.	16	21	23	7	11	13	2	6	6	8	5	14	21	19	51	41
	W.	10	16	29	11	18	21	20	10	9	11	10	21	51	30	47	58
	S. W.	14	21	23	36	29	33	24	27	38	48	21	14	84	107	49	88
	S.	8	4	1	7	1	6	0	5	5	3	7	15	11	15	27	9
	S. E.	5	10	8	9	6	7	6	13	5	1	4	5	26	10	20	23
	E.	20	6	5	7	10	9	19	11	11	5	24	15	39	40	41	22
	N. E.	6	2	2	10	5	2	5	11	6	8	12	3	18	26	11	17
	Calm.	3	9	2	3	4	0	10	10	8	8	4	0	20	20	12	9
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Burlington, Vt	N.	28	16	10	18	22	15	27	26	23	19	19	25	68	61	69	50
	N. W.	6	8	12	4	3	14	5	5	4	6	3	1	24	13	15	19
	W.	11	8	11	10	7	4	6	7	5	2	4	7	17	11	26	28
	S. W.	7	4	2	4	2	6	7	6	8	12	3	4	19	23	15	8
	S.	21	36	29	37	29	28	16	29	32	37	33	45	73	102	102	95
	S. E.	0	4	3	4	0	1	4	4	1	6	6	2	9	13	6	7
	E.	7	8	9	3	2	3	2	2	6	5	13	3	7	24	18	14
	N. E.	1	3	6	2	0	2	0	0	4	1	4	0	2	9	4	8
	Calm.	12	3	11	11	19	20	23	14	7	5	8	3	57	20	18	41
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Statement showing how many times the wind was observed blowing, &c.—Continu

tation.	Wind.	October, '72.	November.	December.	January, '73.	February.	March.	April.	May.	June.	July.	August.	September.	Spring.	Summer.
Cairo, Ill	N.	18	12	14	16	10	9	4	9	4	4	13	12	29	21
	N. W.	9	13	18	11	11	15	10	4	6	7	2	7	29	15
	W.	3	12	6	14	12	10	15	12	6	7	5	1	37	18
	S. W.	4	5	5	7	4	10	10	6	7	11	8	7	26	26
	S.	17	17	19	23	12	17	13	18	24	22	11	17	48	57
	S. E.	12	15	5	5	6	17	15	7	12	9	5	11	39	26
	E.	5	0	3	8	10	3	5	15	11	10	12	5	23	33
	N. E.	2	7	18	6	15	9	14	17	14	16	21	19	40	51
	0	23	9	5	3	4	3	4	5	6	7	16	11	12	29
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cape May, N. J	N.	13	8	9	5	7	3	2	6	5	8	7	15	11	20
	N. W.	20	32	37	25	37	31	24	12	9	5	6	11	67	20
	W.	12	14	14	8	4	20	11	1	7	7	2	2	32	16
	S. W.	8	6	8	4	7	7	2	5	10	9	4	11	14	23
	S.	14	12	9	14	10	20	14	26	25	41	35	22	60	101
	S. E.	10	7	1	5	2	2	7	16	10	12	9	8	25	31
	E.	6	3	4	7	2	4	20	17	11	7	24	9	41	42
	N. E.	8	3	3	15	9	6	9	10	13	3	4	12	25	20
	Calm.	2	5	8	10	6	0	1	0	0	1	2	0	1	3
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Charleston, S. C	N.	15	20	13	11	3	6	5	3	3	2	4	20	14	9
	N. W.	13	16	7	10	8	11	8	6	1	1	4	2	25	6
	W.	4	12	10	18	15	13	5	9	13	11	10	6	27	34
	S. W.	12	8	9	14	20	24	37	13	21	16	20	9	74	57
	S.	1	1	4	4	9	9	17	27	11	21	23	9	53	55
	S. E.	5	3	0	9	3	7	5	9	7	8	8	10	21	23
	E.	7	7	5	5	6	6	6	18	25	20	7	9	30	52
	N. E.	28	9	9	13	9	9	3	8	8	8	6	24	20	22
	Calm.	8	14	36	9	10	8	4	0	1	6	11	1	12	18
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cheyenne, Wyo	N.	12	18	16	10	6	10	15	11	11	5	8	11	36	24
	N. W.	32	25	13	32	10	8	30	10	4	6	8	8	48	18
	W.	26	27	20	28	34	47	19	14	17	16	23	21	80	56
	S. W.	4	10	13	8	12	10	8	7	8	10	3	12	25	21
	S.	6	4	7	3	10	9	3	7	11	17	17	13	19	45
	S. E.	1	0	1	1	2	0	2	10	14	7	10	3	12	31
	E.	1	0	4	1	2	0	0	11	6	9	9	8	11	24
	N. E.	4	1	6	1	0	1	6	3	6	8	6	3	10	20
	Calm.	7	5	13	9	8	8	7	14	12	15	9	11	29	37
	Blank.	0	0	0	0	0	0	0	6	0	0	0	0	6	0
Chicago, Ill	N.	17	1	5	6	4	7	18	23	11	14	12	10	48	37
	N. W.	9	1	14	12	3	6	5	1	7	5	7	15	12	19
	W.	13	28	18	10	20	26	11	5	1	3	2	7	42	6
	S. W.	11	27	25	25	22	9	13	15	20	26	20	35	37	66
	S.	17	16	16	20	15	15	6	12	12	10	4	4	33	26
	S. E.	6	15	3	2	4	13	0	3	9	9	6	9	16	24
	E.	7	2	4	7	6	3	10	11	7	9	9	4	24	25
	N. E.	10	0	2	10	9	9	17	16	23	17	22	6	42	62
	Calm.	3	0	6	1	1	5	10	7	0	0	11	0	22	11
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cincinnati, Ohio	N.	13	12	18	10	8	10	6	12	5	6	21	16	28	32
	N. W.	17	14	17	14	19	15	17	16	9	17	5	18	38	31
	W.	1	14	9	19	10	18	17	7	11	10	6	5	42	27
	S. W.	10	19	11	13	13	9	18	13	14	11	11	9	40	36
	S.	16	10	8	14	12	18	11	11	13	21	7	10	40	41
	S. E.	5	7	2	4	4	12	7	18	15	12	7	15	37	34
	E.	6	5	5	13	8	3	6	9	14	4	11	5	18	29
	N. E.	5	4	7	5	7	6	7	17	9	11	25	7	30	45
	Calm.	20	5	15	1	3	2	1	0	0	1	0	5	3	1
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cleveland, Ohio	N.	3	1	3	8	1	2	8	10	16	17	13	7	20	46
	N. W.	20	5	4	7	2	6	5	9	7	12	7	14	20	26
	W.	2	12	23	9	26	28	14	9	6	14	2	9	51	22
	S. W.	12	32	21	22	10	10	15	7	6	13	12	11	32	31
	S.	9	10	16	14	11	13	5	8	12	13	9	18	26	34
	S. E.	25	21	14	18	9	15	7	23	20	11	20	22	45	51
	E.	2	2	4	4	7	1	7	8	5	3	8	3	16	16
	N. E.	11	2	3	7	6	9	16	18	17	10	22	6	43	49
	Calm.	9	5	5	4	11	9	13	1	1	0	0	0	23	1
	Blank.	0	0	0	0	1	0	0	0	0	0	0	0	0	0

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Statement showing how many times the wind was observed blowing, &c.—Continued.

Station.	Wind.	October, '72.	November.	December.	January, '73.	February.	March.	April.	May.	June.	July.	August.	September.	Spring.	Summer.	Autumn.	Winter.
Corinne, Utah	N.	12	20	32	15	32	21	19	18	23	29	23	34	58	75	66	79
	N. W.	31	17	11	23	20	34	25	17	14	10	6	8	76	30	56	54
	W.	5	1	3	7	2	5	2	6	4	1	0	1	13	5	7	12
	S. W.	7	15	11	8	3	4	3	9	4	6	10	6	16	20	28	22
	S.	22	20	19	22	18	13	18	24	30	27	28	24	55	85	66	59
	S. E.	5	2	1	2	0	7	4	5	4	5	7	4	16	16	11	3
	E.	3	2	2	2	1	1	10	3	2	0	0	1	14	2	6	5
	N. E.	2	8	5	2	1	2	2	3	1	4	3	1	7	8	11	8
	Calm.	6	5	9	12	7	6	7	8	8	11	16	11	21	35	22	28
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Davenport, Iowa	N.	3	2	4	7	3	3	3	5	7	9	11	15	11	27	20	14
	N. W.	19	14	23	21	21	35	18	11	4	12	4	14	64	20	49	65
	W.	6	23	12	13	14	14	5	4	10	6	3	9	23	19	38	39
	S. W.	18	18	21	14	15	13	21	18	27	24	30	19	52	81	55	50
	S.	5	7	4	7	2	6	1	2	2	9	9	11	9	20	23	13
	S. E.	6	13	6	4	7	12	14	12	12	7	6	7	38	25	26	17
	E.	10	2	3	2	2	2	7	14	8	11	16	3	23	35	15	7
	N. E.	3	1	11	11	11	6	19	24	3	9	12	2	49	24	6	33
	Calm.	23	10	8	14	9	2	2	3	17	6	2	10	7	25	43	31
	Blank.	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Denver, Colo	N.	4	3	10	9	12	7	16	11	10	12	12	11	34	34	18	31
	N. W.	3	10	7	16	4	14	9	6	4	2	2	8	29	8	21	27
	W.	3	8	2	10	8	8	2	3	1	4	6	3	13	11	14	20
	S. W.	17	6	9	12	9	3	5	3	1	4	6	0	11	11	23	30
	S.	27	25	20	14	10	22	17	17	25	23	29	27	56	77	79	44
	S. E.	5	2	2	3	2	11	7	10	8	7	6	6	28	21	13	7
	E.	5	5	2	0	3	3	5	8	11	13	5	7	16	29	17	5
	N. E.	10	8	12	7	9	7	13	14	14	9	9	12	34	32	30	28
	Calm.	19	23	29	22	27	18	16	21	16	19	18	16	55	53	58	78
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Detroit, Mich	N.	6	2	8	12	3	16	2	4	5	2	6	5	22	13	13	23
	N. W.	18	14	21	11	22	21	17	8	8	12	4	17	46	24	49	54
	W.	7	34	28	18	18	16	8	8	15	27	13	18	32	55	50	64
	S. W.	25	27	23	24	16	13	15	14	14	20	12	23	42	46	75	63
	S.	2	1	0	5	2	7	6	1	11	4	6	11	14	21	14	7
	S. E.	11	10	1	4	6	6	8	17	15	11	16	5	31	42	26	11
	E.	12	2	7	11	6	2	14	27	16	11	18	4	44	45	18	24
	N. E.	12	0	5	8	10	9	16	13	3	5	18	6	33	26	18	23
	Calm.	0	0	0	0	1	3	4	1	3	1	0	1	8	4	1	1
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dubuque, Iowa*	N.	...	...	..	..	..	..	....	...	..	..	7	7	..	..	....	....
	N. W.	..	..	..	..	..	..	..	..	..	....	22	28	..	..	..	....
	W.	...	..	.	..	..	..	..	..	..	..	7	5	..	..	....	....
	S. W.	..	..	..	..	..	..	..	..	..	..	8	7	..	..	..	....
	S.	..	..	..	..	..	..	..	..	..	..	7	15	..	..	....	....
	S. E.	..	..	..	..	..	..	..	..	..	..	12	4	..	..	....	....
	E.	..	..	..	..	..	..	..	..	..	..	10	4	..	..	..	....
	N. E.	...	..	..	..	..	..	..	..	..	..	7	1	..	..	....	....
	Calm.	...	..	..	..	..	..	..	..	..	..	13	19	..	..	....	....
	Blank.	..	..	..	..	..	..	..	..	..	.	0	0	..	..	....	....
Duluth, Minn	N.	11	5	3	7	3	7	8	3	2	5	6	6	18	13	22	13
	N. W.	19	20	16	13	11	23	14	12	10	12	14	17	49	36	56	40
	W.	4	7	9	10	7	6	2	4	4	7	4	8	12	15	19	26
	S. W.	18	29	41	14	19	10	3	3	10	8	5	15	16	21	62	74
	S.	2	2	5	2	3	1	2	0	0	1	0	5	3	1	9	10
	S. E.	2	1	0	2	1	0	0	0	0	1	1	4	0	2	7	3
	E.	1	3	2	3	2	0	0	0	0	3	4	1	0	7	5	7
	N. E.	22	13	2	25	23	24	36	48	34	34	39	17	108	107	52	50
	Calm.	14	10	15	17	15	22	25	23	30	22	20	17	..	72	41	47
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eastport, Me†	N.	..	..	..	..	....	....	10	11	6	1	14	13	..	21	..	....
	N. W.	..	..	..	..	..	..	16	23	20	13	10	10	.	43	..	....
	W.	..	.	..	..	..	.	11	3	2	3	9	9	....	14	....	....
	S. W.	..	..	..	..	..	..	6	14	12	21	11	13	....	44	..	....
	S.	..	..	..	..	..	..	9	21	20	34	28	32	....	82	..	....
	S. E.	..	..	..	..	..	..	7	6	7	7	1	1	..	15	..	....
	E.	..	..	..	..	..	..	5	0	1	2	1	0	....	4	....	....
	N. E.	..	..	..	....	..	..	20	13	18	5	8	5	....	31	....	....
	Calm.	..	..	..	..	..	..	6	2	4	7	11	7	....	22	....	....
	Blank.	..	..	..	..	..	..	0	0	0	0	0	0	....	0	....	....

*Observations began in August. †Observations began with April

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Statement showing how many times the wind was observed blowing, &c.—Continue

Station.	Wind.	October, '72.	November.	ember.	January, '73.	February.	March.	April.	May.	June.	July.	August.	September.	Spring.	Summer.
Erie, Pa*	N.	....	....	....	....	....	....	....	....	2	4	5	5	....	11
	N. W.	....	....	....	....	....	....	....	....	8	6	7	11	....	21
	W.	....	....	....	....	....	....	....	....	11	19	10	14	....	40
	S. W.	....	....	....	....	....	....	....	....	14	21	7	4	....	42
	S.	....	....	....	....	....	....	....	....	14	17	15	30	....	46
	S. E.	....	....	....	....	....	....	....	....	15	5	11	11	....	31
	E.	....	....	....	....	....	....	....	....	1	1	8	2	....	10
	N. E.	....	....	....	....	....	....	....	....	14	11	21	10	....	46
	Calm.	....	....	....	....	....	....	....	....	11	9	9	3	....	29
	Blank.	....	....	....	....	....	....	....	....	0	0	0	0	....	0
Escanaba, Mich	N.	7	4	6	20	12	30	43	21	12	17	15	10	94	44
	N. W.	14	5	24	12	10	11	3	3	3	5	4	21	17	12
	W.	5	14	33	13	14	9	4	4	7	6	7	15	17	20
	S. W.	21	30	5	4	1	2	1	1	2	4	14	19	4	20
	S.	23	7	2	13	12	16	16	24	33	34	26	13	56	93
	S. E.	15	6	1	0	16	9	2	6	8	8	2	7	17	18
	E.	4	5	0	4	6	9	2	15	13	6	6	1	26	25
	N. E.	2	6	3	12	5	1	14	18	10	8	14	4	33	32
	Calm.	2	13	19	15	8	6	5	1	2	5	5	0	12	12
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fort Benton, Mont	N.	4	6	4	5	5	4	11	6	2	10	7	11	21	19
	N. W.	9	2	5	7	5	9	12	10	7	7	7	8	31	21
	W.	8	5	15	10	8	17	9	11	18	16	12	24	37	46
	S. W.	33	29	23	27	28	35	22	13	30	19	22	12	70	71
	S.	2	1	1	1	2	4	2	6	2	5	3	2	12	10
	S. E.	1	1	0	0	0	0	1	1	2	3	1	1	2	6
	E.	0	1	2	2	2	3	10	19	9	9	21	16	32	39
	N. E.	12	5	8	15	3	7	5	6	5	16	10	6	18	31
	Calm.	24	34	35	26	31	14	18	21	15	8	10	10	53	33
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fort Gibson, Ind. T†	N.	....	....	....	....	....	....	4	3	5	1	3	2	....	9
	N. W.	....	....	....	....	....	....	15	10	21	13	9	19	....	43
	W.	....	....	....	....	....	....	19	9	6	1	4	2	....	11
	S. W.	....	....	....	....	....	....	5	3	6	5	10	2	....	21
	S.	....	....	....	....	....	....	2	3	8	6	7	4	....	21
	S. E.	....	....	....	....	....	....	20	19	4	28	14	23	....	46
	E.	....	....	....	....	....	....	12	24	23	23	17	19	....	63
	N. E.	....	....	....	....	....	....	4	12	17	8	15	6	....	40
	Calm.	....	....	....	....	....	....	9	10	0	8	14	13	....	22
	Blank.	....	....	....	....	....	....	0	0	0	0	0	0	....	0
Fort Sully, Dak	N.	3	4	5	7	4	8	20	8	10	10	5	11	36	25
	N. W.	24	33	17	24	18	23	28	14	10	9	16	19	65	35
	W.	11	17	21	12	14	11	5	5	6	6	7	10	21	19
	S. W.	4	3	1	4	3	5	3	5	7	2	1	2	13	10
	S.	4	1	2	0	2	2	2	3	2	4	2	5	7	8
	S. E.	19	4	8	9	5	11	8	14	26	26	31	16	33	83
	E.	8	10	18	15	15	19	12	27	7	9	17	6	58	33
	N. E.	1	1	1	6	7	4	1	7	8	15	3	2	12	26
	Calm.	19	17	20	16	16	10	11	10	14	12	11	19	31	37
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Galveston, Tex	N.	18	30	21	16	8	12	11	7	2	0	6	19	30	8
	N. W.	2	6	8	15	6	3	10	5	3	7	5	0	18	15
	W.	2	5	0	0	4	0	3	0	2	3	4	1	3	9
	S. W.	0	2	0	1	1	1	2	3	10	4	5	1	6	19
	S.	3	11	10	7	15	19	17	23	46	46	20	21	59	112
	S. E.	26	20	14	28	30	40	33	41	18	11	21	20	114	59
	E.	8	6	16	9	10	10	3	8	3	6	8	10	21	17
	N. E.	29	9	19	12	6	3	0	6	0	6	9	13	9	15
	Calm.	5	1	5	5	4	4	13	0	6	10	15	5	17	31
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Haven, Mich	N.	12	0	10	13	0	9	3	5	0	5	3	2	17	8
	N. W.	13	22	19	4	4	16	16	9	11	18	13	14	41	42
	W.	11	15	23	15	31	15	7	14	16	10	15	9	36	41
	S. W.	14	20	7	8	7	13	22	17	22	25	12	14	52	59
	S.	4	5	5	17	13	13	1	4	7	6	9	14	18	22
	S. E.	12	14	4	8	4	9	2	10	5	4	0	5	21	9
	E.	11	4	11	9	12	5	19	20	15	6	13	4	44	34
	N. E.	7	5	6	14	7	7	15	5	0	3	3	12	27	6
	Calm.	9	5	8	5	6	6	5	9	14	16	25	16	20	55
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Observations began May 25.

†Observations began with Ap

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Statement showing how many times the wind was observed blowing, &c.—Continued.

Station.	Wind.	October, '72.	November.	December.	January, '73.	February.	March.	April.	May.	June.	July.	August.	September.	Spring.	Summer.	Autumn.	Winter.
Indianapolis, Ind.	N.	12	2	7	4	8	3	2	7	7	8	15	15	12	30	29	19
	N. W.	15	15	19	14	12	18	11	5	6	11	6	15	34	23	45	45
	W.	5	23	12	17	16	20	13	11	6	8	4	7	44	18	35	45
	S. W.	12	16	11	19	16	9	20	15	18	19	12	9	44	49	37	46
	S.	21	12	17	11	8	17	11	10	20	25	10	18	38	55	51	36
	S. E.	3	11	2	5	9	10	8	8	8	6	2	6	26	16	20	16
	E.	1	1	3	5	2	5	10	13	12	5	5	2	28	22	4	10
	N. E.	8	3	12	4	5	5	5	14	6	5	13	3	24	24	14	21
	Calm.	15	7	10	14	8	6	9	10	7	6	26	15	25	39	37	32
	Blank.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Indianola, Tex	N.	37	34	34	22	15	14	19	9	0	4	5	6	42	9	77	71
	N. W.	3	6	7	8	4	1	5	2	2	1	4	2	8	7	14	19
	W.	0	5	0	7	5	0	0	0	3	2	2	1	0	7	6	12
	S. W.	0	3	1	0	4	2	4	2	9	8	5	1	8	22	4	5
	S.	1	3	4	7	7	11	23	16	42	43	21	22	50	106	26	18
	S. E.	21	12	7	19	25	43	30	50	26	15	33	20	123	74	53	51
	E.	27	17	18	9	11	8	2	9	5	8	12	16	19	25	60	38
	N. E.	4	8	21	20	13	11	6	5	1	9	10	19	22	20	31	54
	Calm.	0	2	1	1	0	3	1	0	2	3	1	3	4	6	5	2
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jacksonville, Fla.	N.	20	14	20	14	4	10	4	4	4	5	0	16	18	9	50	38
	N. W.	17	22	16	15	8	11	6	9	6	3	4	9	26	13	48	39
	W.	10	2	6	9	13	9	8	7	9	5	2	1	24	16	13	28
	S. W.	3	10	19	11	22	22	32	10	22	15	14	11	64	51	24	52
	S.	1	4	5	14	15	12	16	10	16	21	24	4	38	61	9	34
	S. E.	0	2	1	5	5	8	11	17	9	17	19	8	36	45	10	11
	E.	9	7	1	3	1	5	3	15	9	7	17	5	23	33	21	4
	N. E.	26	23	24	21	8	14	8	12	14	15	7	33	34	36	82	53
	Calm.	6	6	4	1	8	2	2	9	1	5	6	3	13	12	15	13
	Blank.	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Keokuk, Iowa	N.	6	1	9	9	7	5	8	7	6	6	3	7	20	15	14	25
	N. W.	15	19	14	16	15	20	14	7	13	11	9	19	41	33	53	45
	W.	7	23	15	22	14	15	10	8	12	8	2	5	33	22	35	51
	S. W.	21	13	13	8	6	7	10	6	11	11	18	15	23	40	49	27
	S.	8	12	10	10	8	10	8	9	12	14	10	20	27	36	40	28
	S. E.	8	10	6	1	5	13	11	12	20	12	15	8	36	47	26	12
	E.	7	6	3	7	12	5	10	20	6	1	9	2	35	16	15	28
	N. E.	5	0	6	6	6	4	6	14	2	8	11	2	24	21	7	18
	Calm.	16	6	17	14	11	14	13	10	18	12	16	12	37	46	34	42
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Key West, Fla	N.	21	33	23	28	17	17	17	12	1	0	5	3	46	6	57	68
	N. W.	5	4	5	8	1	5	11	4	2	0	0	1	20	2	10	14
	W.	0	0	2	2	2	2	0	5	2	5	0	2	7	7	2	6
	S. W.	1	0	0	0	8	4	5	7	11	15	3	10	16	29	11	8
	S.	1	4	5	7	5	2	2	7	5	3	4	3	11	12	8	17
	S. E.	3	11	5	8	13	7	23	21	16	5	7	10	51	28	24	26
	E.	13	9	15	15	25	25	22	26	40	49	49	35	73	138	57	55
	N. E.	47	27	38	23	11	30	9	8	3	15	23	26	47	41	100	72
	Calm.	2	2	0	2	2	1	1	3	10	1	2	0	5	13	4	4
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Knoxville, Tenn.	N.	17	15	26	21	12	7	7	6	3	16	20	13	20	39	45	50
	N. W.	8	9	7	10	4	7	7	8	2	4	6	3	22	12	20	21
	W.	18	16	14	22	22	21	16	13	12	2	7	2	50	21	36	58
	S. W.	5	6	4	1	4	7	13	14	32	28	18	20	34	78	31	9
	S.	6	11	9	6	10	18	26	16	6	8	6	5	60	20	22	25
	S. E.	0	2	3	3	0	1	4	4	2	1	0	1	9	3	3	6
	E.	4	4	6	3	4	5	1	12	16	10	7	13	18	33	21	13
	N. E.	9	8	10	6	10	8	5	15	11	12	15	14	28	38	31	26
	Calm.	26	19	14	21	18	19	11	5	6	12	14	19	35	32	64	53
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
La Crosse, Wis. *	N.	....	5	6	14	3	12	8	8	5	7	13	13	28	25	....	23
	N. W.	....	22	17	13	14	22	14	10	9	12	9	8	46	30	....	44
	W.	....	7	8	3	5	2	0	2	5	3	5	3	4	13	....	16
	S. W.	....	15	18	13	14	9	5	12	15	15	12	22	26	42	....	45
	S.	....	12	10	15	17	12	9	11	18	16	18	17	32	52	....	42
	S. E.	....	16	21	14	17	23	14	21	26	29	18	17	60	73	....	52
	E.	....	0	0	1	1	0	0	1	0	1	0	0	1	1	....	2
	N. E.	....	9	10	16	8	8	37	24	7	9	6	8	69	22	....	34
	Calm.	....	4	3	4	5	3	3	4	5	1	12	2	10	18	....	12
	Blank.	....	0	0	0	0	0	0	0	0	0	0	0	0	0	....	0

* Observations began October 15, 1872.

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Statement showing how many times the wind was observed blowing, &c.—Continu

Station.	Wind.	October, '72.	November.	December.	January, '73.	February.	March.	April.	May.	June.	July.	August.	September.	Spring.	Summer.
Lake City, Fla	N.	12	21	12	16	1	7	3	5	6	2	2	6	15	10
	N. W.	10	14	13	13	12	9	8	7	6	4	7	4	24	17
	W.	3	4	3	6	11	10	21	15	19	12	6	11	46	37
	S. W.	1	8	12	10	24	18	20	13	17	17	27	4	51	61
	S.	0	3	4	5	6	3	8	16	8	10	19	4	27	37
	S. E.	4	3	5	8	6	7	8	13	9	10	14	13	28	33
	E.	21	8	7	11	8	10	4	5	11	16	4	20	19	31
	N. E.	34	16	17	13	5	12	6	11	3	3	3	21	29	9
	Calm.	8	13	20	11	11	17	12	8	11	19	11	7	37	41
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leavenworth, Kans.	N.	12	16	25	23	14	17	20	11	17	16	12	19	48	45
	N. W.	5	23	19	15	18	21	23	12	3	2	1	4	56	6
	W.	1	7	1	7	2	3	3	5	0	0	2	0	11	2
	S. W.	1	5	3	1	5	8	4	4	7	8	6	3	16	21
	S.	21	21	16	18	12	22	18	19	34	35	30	39	59	99
	S. E.	12	11	11	7	12	7	9	18	8	10	19	5	34	37
	E.	1	3	3	6	8	3	2	11	2	2	6	6	16	10
	N. E.	4	2	8	4	8	9	7	4	4	9	3	8	20	16
	Calm.	36	2	7	12	5	3	6	9	15	11	14	6	18	40
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lexington, Ky *	N.	....	4	9	3	4	1	4	7	4	5	20	16	12	29
	N. W.	....	8	11	13	12	18	11	4	6	6	6	7	33	18
	W.	....	15	15	16	18	18	19	13	12	10	4	3	50	26
	S. W.	....	16	11	9	11	12	21	18	24	23	12	18	51	59
	S.	....	21	26	24	13	23	16	16	19	27	13	23	55	59
	S. E.	....	5	1	11	5	11	4	14	4	10	11	5	29	25
	E.	....	5	3	4	8	5	5	7	12	4	8	6	17	24
	N. E.	....	12	14	10	6	2	8	13	7	5	16	11	23	28
	Calm.	....	4	4	3	7	3	2	1	2	3	3	1	6	8
	Blank.	....	0	0	0	0	0	0	0	0	0	0	0	0	0
Louisville, Ky	N.	10	2	7	3	4	1	3	4	6	10	23	23	8	39
	N. W.	15	18	25	22	22	20	14	8	12	12	9	9	42	33
	W.	6	14	11	12	10	19	14	8	6	9	0	4	41	15
	S. W.	8	13	6	16	7	11	18	15	10	17	14	15	44	41
	S.	19	12	13	15	8	15	16	14	21	25	16	18	45	62
	S. E.	7	15	8	12	9	14	7	7	3	5	1	0	28	9
	E.	2	6	2	1	4	1	7	6	5	3	2	4	14	10
	N. E.	3	7	13	8	10	3	4	18	8	5	14	7	25	27
	Calm.	23	3	8	4	10	9	7	13	19	7	14	10	29	40
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lynchburgh, Va	N.	3	3	7	4	2	0	2	5	3	5	4	7	7	12
	N. W.	7	4	13	6	12	15	11	8	1	8	4	6	34	13
	W.	18	23	13	9	20	25	17	7	5	14	9	4	49	28
	S. W.	15	18	34	22	19	18	22	16	32	19	12	10	56	63
	S.	10	10	4	9	2	4	9	6	9	5	3	6	19	17
	S. E.	4	1	3	1	2	0	1	8	1	2	5	1	9	8
	E.	2	4	2	5	7	3	6	7	4	7	4	10	16	15
	N. E.	17	9	10	21	13	7	11	21	12	9	22	7	39	42
	Calm.	17	18	7	16	7	21	11	15	23	24	30	39	47	77
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marquette, Mich	N.	1	3	0	5	4	5	18	12	8	1	7	8	35	16
	N. W.	10	7	12	23	18	36	26	17	10	20	16	19	79	46
	W.	28	29	47	18	16	8	3	3	8	8	10	17	14	26
	S. W.	11	17	16	11	11	5	3	2	6	12	15	12	10	33
	S.	6	8	2	7	6	14	4	1	7	7	2	9	19	16
	S. E.	17	11	4	6	8	5	6	12	17	14	11	10	23	42
	E.	5	9	1	4	6	5	8	11	8	8	7	7	24	23
	N. E.	10	5	0	6	4	5	6	4	4	2	7	3	15	13
	Calm.	5	1	11	13	11	10	16	31	22	21	18	5	57	61
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Memphis, Tenn	N.	14	15	16	12	8	4	6	3	2	7	16	13	13	25
	N. W.	14	11	18	15	12	19	12	8	8	7	15	15	39	30
	W.	3	12	6	10	15	8	13	11	9	6	4	5	32	19
	S. W.	11	10	9	11	10	11	20	15	16	21	16	13	46	53
	S.	15	19	13	11	5	11	9	18	23	21	3	9	38	47
	S. E.	7	6	4	11	13	21	18	9	9	9	7	8	48	23
	E.	5	5	7	2	11	2	7	9	7	5	8	2	18	20
	N. E.	11	7	16	14	10	13	4	12	5	13	20	20	29	38
	Calm.	13	5	4	7	0	4	1	8	11	4	4	5	13	19
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Observations began October 11, 1872.

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Statement showing how many times the wind was observed blowing, &c.—Continued.

Station.	Wind.	October, '72.	November.	December.	January, '73.	February.	March.	April.	May.	June.	July.	August.	September.	Spring.	Summer.	Autumn.	Winter.
Milwaukee, Wis.	N.	8	0	5	7	3	1	7	9	2	6	4	5	17	12	13	15
	N. W.	20	19	32	22	17	32	6	6	13	10	15	23	44	38	62	71
	W.	16	33	27	21	26	9	9	7	13	13	9	12	25	35	61	74
	S. W.	13	15	17	18	10	14	11	6	13	9	11	16	31	33	44	45
	S.	4	5	0	5	5	9	0	3	3	6	4	7	12	13	16	10
	S. E.	13	14	0	4	10	13	14	8	12	18	16	19	35	46	46	14
	E.	7	1	1	6	2	1	9	14	13	12	9	2	24	34	10	9
	N. E.	5	2	1	7	4	8	28	31	8	6	18	4	67	32	11	12
	Calm.	7	1	8	3	7	6	6	9	13	13	7	2	21	33	10	18
	Blank.	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Mobile, Ala.	N.	32	32	25	24	13	13	13	7	9	15	6	20	33	30	84	62
	N. W.	3	5	8	14	7	9	11	5	1	5	6	7	25	12	15	29
	W.	0	3	1	2	8	1	5	5	10	4	7	2	11	21	5	11
	S. W.	5	0	1	4	2	7	10	6	21	14	8	3	23	43	8	7
	S.	5	10	11	10	22	33	31	32	20	18	19	9	96	57	24	43
	S. E.	12	9	5	8	9	6	6	10	6	8	7	3	22	21	24	22
	E.	8	8	1	5	3	3	2	4	6	5	13	16	9	24	32	9
	N. E.	17	5	13	12	6	8	1	6	8	10	11	19	15	29	41	31
	Calm.	11	18	28	14	14	13	11	18	12	14	13	11	42	39	40	56
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Montgomery, Ala.	N.	16	4	7	8	2	4	2	4	3	2	4	7	10	9	27	17
	N. W.	15	25	24	28	23	24	6	1	10	8	7	14	31	25	54	75
	W.	4	4	1	8	10	6	20	12	8	9	10	9	38	27	17	19
	S. W.	0	4	5	0	3	5	12	15	13	14	3	6	32	30	10	8
	S.	1	3	2	5	9	10	18	12	7	9	8	2	40	24	6	16
	S. E.	3	12	12	15	13	18	13	23	22	18	18	11	54	58	26	40
	E.	15	10	9	7	9	9	3	10	10	8	11	14	22	29	39	25
	N. E.	7	4	5	1	1	2	5	3	3	4	4	11	10	11	22	7
	Calm.	32	24	28	21	15	15	11	13	14	21	28	16	39	63	72	64
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Montreal, Canada	N.	2	6	2	6	4	4	8	15	3	6	5	1	27	14	9	12
	N. W.	12	0	0	1	1	7	5	2	3	3	1	5	14	7	17	2
	W.	31	47	60	41	33	46	37	30	35	60	30	56	113	125	134	134
	S. W.	3	9	7	12	4	6	0	2	4	6	12	6	8	22	18	23
	S.	17	9	7	5	2	10	3	19	20	7	16	10	32	43	36	14
	S. E.	4	2	3	0	1	1	0	2	2	1	3	4	3	6	10	4
	E.	0	2	1	0	0	1	5	4	1	2	7	1	10	10	3	1
	N. E.	24	15	10	26	38	18	32	19	22	8	18	6	69	48	45	74
	Calm.	0	0	3	2	1	0	0	0	0	0	1	1	0	1	1	6
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Morgantown, W. Va.*	N.	....	....	....	....	5	4	5	15	6	7	11	6	24	24	....	....
	N. W.	....	....	....	....	12	10	7	5	5	4	11	6	22	20	....	....
	W.	....	....	....	....	19	31	22	5	10	8	5	5	58	23	....	....
	S. W.	....	....	....	....	21	22	16	9	13	18	8	13	47	39	....	....
	S.	....	....	....	....	5	4	8	12	15	21	10	7	24	46	....	....
	S. E.	....	....	....	....	2	2	4	6	6	3	2	5	12	11	....	....
	E.	....	....	....	....	3	3	6	6	2	0	3	1	15	5	....	....
	N. E.	....	....	....	....	8	6	11	9	5	2	7	4	26	14	....	....
	Calm.	....	....	....	....	9	9	11	26	28	30	36	43	46	94	....	....
	Blank.	....	....	....	....	0	2	0	0	0	0	0	0	2	0	....	....
Mount Washington, N. H.	N.	11	1	5	6	2	0	7	13	5	4	10	1	20	19	13	13
	N. W.	18	17	21	11	21	28	14	23	41	34	42	62	65	117	97	53
	W.	22	34	35	38	32	35	45	39	18	21	17	9	119	56	65	105
	S. W.	17	15	6	28	11	15	5	4	5	13	3	14	24	21	46	45
	S.	1	2	6	6	4	7	4	6	1	7	0	0	17	8	3	16
	S. E.	2	14	11	2	7	6	8	3	1	6	9	1	17	16	17	20
	E.	2	0	2	0	0	0	3	3	3	4	2	0	6	9	2	2
	N. E.	14	5	4	1	6	2	2	0	8	0	4	0	4	12	19	11
	Calm.	6	2	3	1	1	0	2	2	8	4	6	3	4	18	11	5
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nashville, Tenn.	N.	16	8	8	9	1	4	2	2	0	6	9	10	8	15	34	18
	N. W.	17	9	16	7	16	15	8	4	3	5	10	13	27	18	39	39
	W.	4	19	22	23	13	13	22	13	9	5	11	4	48	25	27	58
	S. W.	8	8	4	6	10	6	13	7	6	6	0	5	26	12	21	20
	S.	7	12	8	14	8	17	20	12	6	11	2	5	49	19	24	30
	S. E.	11	12	10	10	7	9	2	4	8	8	1	7	15	17	30	27
	E.	4	6	5	8	8	3	6	6	7	8	4	5	15	19	15	21
	N. E.	3	8	10	6	4	0	4	11	4	3	4	3	15	11	14	20
	Calm.	23	8	10	10	17	26	13	34	47	41	52	38	73	140	69	37
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Observations began January 27, 1873.

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Statement showing how many times the wind was observed blowing, &c.—Contin

Station.	Wind.	October, '72.	November.	December.	January, '73.	February.	March.	April.	May.	June.	July.	August.	September.	Spring.	Summer.
New Haven, Conn*..	N.	....	....	....	27	20	11	15	12	8	10	9	8	38	27
	N. W.	....	....	....	18	18	24	22	15	10	11	10	17	61	31
	W.	....	....	....	19	12	14	8	9	6	5	5	1	31	16
	S. W.	....	....	....	14	14	7	7	8	16	16	12	17	32	44
	S.	....	....	....	4	2	6	8	20	16	30	21	16	34	67
	S. E.	....	....	....	3	3	8	6	9	9	5	4	7	23	18
	E.	....	....	....	0	0	0	5	5	5	2	2	3	10	9
	N. E.	....	....	....	5	8	10	13	13	9	7	19	10	36	32
	Calm.	....	....	....	3	7	3	6	2	11	7	11	11	11	22
	Blank.	....	....	....	0	0	0	0	0	0	0	0	0	0	0
New London, Conn..	N.	13	8	11	16	18	10	8	10	11	11	21	23	28	43
	N. W.	24	27	41	29	26	23	30	18	9	10	4	10	71	23
	W.	3	5	14	7	12	12	5	2	4	2	2	2	19	8
	S. W.	14	19	10	12	12	21	16	17	26	24	16	17	54	60
	S.	1	6	2	3	2	6	3	5	4	11	7	6	14	22
	S. E.	11	6	4	10	3	9	8	19	18	17	14	12	36	48
	E.	1	1	1	2	4	2	10	8	5	2	4	1	20	11
	N. E.	16	4	4	8	5	8	6	7	7	6	11	7	21	24
	Calm.	10	8	2	6	2	2	4	7	6	10	14	12	13	36
	Blank.	0	6	4	0	0	0	0	0	0	0	0	0	0	0
New Orleans, La	N.	17	18	23	17	9	12	12	6	0	5	3	14	30	8
	N. W.	8	13	8	17	4	7	12	6	5	10	12	6	25	23
	W.	0	6	3	6	10	6	6	7	11	10	6	2	19	23
	S. W.	1	4	4	4	12	8	16	6	18	9	7	1	30	34
	S.	0	3	7	5	13	16	7	18	14	11	9	3	41	34
	S. E.	8	11	13	24	14	17	25	25	23	26	18	13	67	67
	E.	32	18	22	7	12	18	7	7	10	8	14	22	32	39
	N. E.	18	14	11	11	7	6	5	9	4	7	9	22	20	28
	Calm.	9	3	2	2	3	3	0	9	4	8	15	7	12	27
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New York, N. Y	N.	1	0	5	4	3	2	3	4	4	6	2	5	9	18
	N. W.	23	17	21	16	23	20	16	15	14	12	14	18	51	40
	W.	10	16	22	24	16	22	18	5	7	11	6	4	45	28
	S. W.	19	32	26	16	20	26	9	15	18	21	15	22	50	54
	S.	5	5	3	3	1	3	10	15	18	19	12	11	28	49
	S. E.	15	10	3	6	4	10	7	13	8	10	5	8	30	25
	E.	3	3	1	1	2	0	6	9	8	3	7	5	15	18
	N. E.	17	5	9	22	15	9	17	15	10	6	21	12	41	37
	Calm.	0	2	3	1	0	1	4	2	3	5	11	5	7	18
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norfolk, Va	N.	20	14	21	15	16	12	13	6	8	5	4	13	31	17
	N. W.	9	15	10	11	14	12	11	5	8	3	1	2	28	19
	W.	3	9	6	10	5	13	9	3	5	3	5	1	25	13
	S. W.	10	6	18	9	10	14	11	7	17	20	15	7	32	52
	S.	14	12	13	13	10	21	15	13	20	28	32	13	49	80
	S. E.	14	11	3	11	7	9	11	25	9	17	10	11	45	36
	E.	7	6	0	7	8	2	7	11	10	7	7	13	20	24
	N. E.	10	10	11	7	4	6	10	18	12	6	11	20	34	28
	Calm.	6	7	11	10	10	4	3	5	1	4	8	10	12	13
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Omaha, Nebr	N.	13	4	22	29	17	24	27	17	16	15	9	20	68	46
	N. W.	9	31	13	19	21	16	28	13	3	7	6	9	57	16
	W.	6	12	9	2	3	3	5	0	2	2	2	3	8	9
	S. W.	4	6	12	5	8	8	3	6	7	5	9	3	17	21
	S.	23	13	11	11	10	19	5	8	25	28	21	24	32	74
	S. E.	14	9	1	3	9	8	10	11	14	21	23	12	29	56
	E.	4	2	0	3	1	2	5	7	0	1	3	4	14	4
	N. E.	0	1	2	3	1	0	2	12	1	8	4	3	14	13
	Calm.	20	12	23	18	14	13	5	19	22	6	16	12	37	44
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oswego, N. Y	N.	6	5	4	1	5	7	4	5	11	4	10	6	16	25
	N. W.	19	23	19	13	16	20	16	11	7	9	9	25	47	32
	W.	7	11	19	11	18	24	24	22	26	24	8	4	70	58
	S. W.	3	14	13	13	2	5	3	5	3	9	5	10	13	17
	S.	23	21	21	17	15	13	4	15	18	21	20	20	32	59
	S. E.	12	5	11	22	13	16	18	16	12	9	13	15	50	36
	E.	1	2	2	6	1	3	4	1	1	1	5	0	8	7
	N. E.	12	2	3	8	8	3	7	9	0	3	12	4	19	15
	Calm.	10	7	1	2	6	2	10	9	12	13	11	6	21	36
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Observations began December 10, 1873.

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Statement showing how many times the wind was observed blowing, &c.—Continued.

Station.	Wind.	October, '72.	November.	December.	January, '73.	February.	March.	April.	May.	June.	July.	August.	September.	Spring.	Summer.	Autumn.	Winter.
Pembina, Minn*	N.	....	2	5	....	....	2	6	2	3	5	3	5	10	11	....	....
	N. W.	....	38	23	....	....	36	42	12	29	32	18	34	90	79	....	....
	W.	....	2	2	....	....	1	0	4	2	3	2	0	5	7	....	....
	S. W.	....	7	3	....	....	5	1	2	7	6	7	6	8	20	....	....
	S.	....	3	3	....	....	1	4	4	4	3	4	0	9	11	....	....
	S. E.	....	11	9	....	....	26	17	19	24	19	29	18	62	72	....	....
	E.	....	0	0	....	....	0	1	10	3	1	1	1	1	5	....	....
	N. E.	....	1	4	....	....	3	5	21	6	9	4	7	29	19	....	....
	Calm.	....	26	19	....	....	19	14	18	12	15	25	19	51	52	....	....
	Blank.	....	0	25	....	....	0	0	1	0	0	0	0	1	0	....	....
Philadelphia, Pa	N.	8	6	9	8	6	3	10	8	2	4	8	12	21	14	26	23
	N. W.	21	32	28	21	32	37	19	13	12	16	8	10	69	36	63	81
	W.	9	17	16	19	8	17	7	6	12	19	13	3	30	44	29	43
	S. W.	16	17	21	6	13	15	15	15	21	20	21	24	45	62	57	40
	S.	5	2	3	2	0	6	6	8	8	10	4	9	20	22	16	5
	S. E.	3	4	2	3	2	2	5	8	10	9	8	8	15	27	15	7
	E.	9	1	2	9	6	4	15	15	10	6	15	8	34	31	18	17
	N. E.	20	6	12	25	13	7	9	17	14	8	15	14	33	37	40	50
	Calm.	2	5	0	0	4	2	4	3	1	1	1	2	9	3	9	4
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pittsburgh, Pa	N.	7	3	2	3	4	3	6	9	11	11	6	4	18	28	14	9
	N. W.	18	15	18	13	15	14	16	13	11	13	15	25	43	39	58	46
	W.	12	22	18	17	27	30	17	8	15	21	10	9	55	46	43	62
	S. W.	11	19	21	11	6	11	11	6	13	24	14	11	28	51	41	38
	S.	9	7	5	12	7	10	4	6	7	8	1	9	20	16	25	24
	S. E.	5	4	9	7	5	5	10	13	7	1	4	7	28	12	16	21
	E.	8	4	4	12	8	6	5	11	4	2	15	6	22	21	18	24
	N. E.	10	6	6	5	4	5	7	7	7	4	17	7	19	28	23	15
	Calm.	13	10	10	13	8	9	14	20	15	9	11	12	43	35	35	31
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Portland, Me	N.	20	17	11	9	11	7	13	4	3	4	7	9	24	14	46	31
	N. W.	11	6	14	16	11	16	13	19	15	10	12	10	48	37	27	41
	W.	15	22	24	16	15	11	7	5	6	7	5	8	23	18	45	55
	S. W.	7	16	19	21	14	30	15	17	24	29	17	22	62	70	45	54
	S.	18	17	7	2	2	2	3	21	12	8	12	13	26	32	48	11
	S. E.	5	3	2	2	0	5	7	2	7	8	10	12	14	25	20	4
	E.	5	0	0	0	3	0	3	1	3	3	1	1	4	7	6	3
	N. E.	5	2	2	12	16	13	17	12	11	7	11	3	42	29	10	30
	Calm.	7	7	14	15	12	9	12	12	9	17	18	12	33	44	26	41
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Portland, Oregon	N.	0	6	8	3	2	1	3	5	0	2	6	3	9	8	9	13
	N. W.	25	9	12	12	12	13	17	25	30	46	33	41	55	109	75	36
	W.	5	5	1	4	6	12	8	23	8	14	14	9	43	36	19	11
	S. W.	3	9	6	4	1	5	3	6	10	0	2	1	14	12	13	11
	S.	13	13	6	12	6	12	2	1	5	2	4	5	15	11	31	24
	S. E.	14	10	22	30	28	39	30	15	21	13	13	6	84	47	30	30
	E.	2	21	11	13	9	3	2	5	7	3	8	4	10	18	27	33
	N. E.	5	3	5	4	7	0	7	5	3	6	3	3	12	12	11	16
	Calm.	26	14	18	11	13	8	18	8	6	7	10	18	34	23	58	42
	Blank.	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
Punta Rassa, Fla	N.	8	27	20	20	11	23	14	8	9	2	6	1	45	17	36	51
	N. W.	8	8	9	15	16	9	11	4	4	2	3	4	24	9	20	40
	W.	1	5	3	3	1	9	13	15	13	6	7	7	37	26	13	7
	S. W.	0	0	1	4	7	7	10	13	20	17	15	13	30	52	13	12
	S.	1	10	9	9	12	8	12	12	4	11	6	9	32	21	30	30
	S. E.	3	2	4	14	9	7	8	12	9	11	7	5	27	27	10	27
	E.	10	11	13	10	8	7	11	19	20	27	28	34	37	75	55	30
	N. E.	61	23	34	18	10	21	10	11	10	17	21	17	42	48	101	62
	Calm.	1	4	1	0	1	2	1	0	1	0	0	0	3	1	5	2
	Blank.	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	9
Rochester, N. Y	N.	5	1	2	1	3	0	18	4	11	12	7	6	22	30	12	6
	N. W.	19	13	14	8	8	12	14	15	24	10	12	17	41	46	49	30
	W.	13	33	41	26	36	41	26	22	8	25	14	19	89	47	65	103
	S. W.	24	23	18	15	8	13	6	9	13	24	19	31	28	56	78	41
	S.	4	12	7	15	9	5	2	9	8	6	4	5	16	18	21	31
	S. E.	12	3	6	15	10	13	11	17	6	7	14	7	41	27	22	31
	E.	6	1	2	7	4	5	10	3	12	2	10	1	18	24	8	13
	N. E.	8	4	2	4	6	3	3	14	8	7	13	4	20	28	16	12
	Calm.	2	0	1	2	0	1	0	0	0	0	0	0	1	0	2	3
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Observations began November 1, 1872. January and February incomplete.

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Statement showing how many times the wind was observed blowing, &c.—Conti

Station.	Wind.	October, '72.	November.	December.	January, '73.	February.	March.	April.	May.	June.	July.	August.	September.	Spring.
San Antonio, Tex.	N.	15	26	17	14	5	8	10	2	1	2	4	1	20
	N. W.	0	1	2	8	0	1	6	6	3	0	1	0	13
	W.	0	0	2	1	3	0	0	1	0	0	0	0	1
	S. W.	0	1	4	1	4	3	1	1	6	3	1	6	5
	S.	2	2	1	10	3	5	2	1	0	5	2	13	8
	S. E.	16	9	8	15	15	32	31	20	36	40	19	22	83
	E.	3	3	6	3	0	3	0	15	7	7	11	5	16
	N. E.	21	9	14	6	19	8	8	20	9	8	16	18	36
	Calm.	36	39	39	35	35	33	32	27	28	28	39	25	92
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0
San Diego, Cal.	N.	16	8	10	4	9	14	7	4	7	10	19	13	25
	N. W.	17	17	17	21	9	13	16	10	12	13	18	29	39
	W.	12	10	8	7	11	14	18	23	16	33	27	26	55
	S. W.	7	5	9	6	6	5	10	23	17	14	8	4	38
	S.	3	8	8	3	10	10	4	17	25	18	13	12	31
	S. E.	0	1	1	4	7	4	1	2	4	0	1	1	7
	E.	1	11	8	8	4	3	5	1	0	0	2	1	9
	N. E.	8	16	13	18	21	10	5	0	3	1	1	2	15
	Calm.	29	14	19	22	7	20	24	13	6	4	4	2	57
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco, Cal.	N.	0	7	11	11	5	5	4	0	0	0	0	0	9
	N. W.	5	28	12	16	14	18	10	0	0	0	0	0	28
	W.	25	15	6	16	14	25	32	10	7	4	5	0	67
	S. W.	38	8	8	10	16	24	24	69	72	83	85	85	117
	S.	0	0	4	3	7	1	3	0	0	1	1	0	4
	S. E.	0	5	6	9	9	2	2	1	1	2	1	2	5
	E.	0	0	3	2	1	0	1	0	0	0	0	0	1
	N. E.	1	4	3	1	2	3	4	1	0	1	0	0	8
	Calm.	22	23	40	25	16	15	10	12	10	2	1	3	37
	Blank.	2	0	0	0	0	0	0	0	0	0	0	0	0
Santa Fé, N. Mex.	N.	17	29	16	42	15	20	21	18	22	13	10	6	59
	N. W.	4	12	14	22	10	13	9	2	9	3	9	4	24
	W.	5	2	2	2	6	5	9	14	5	5	5	3	28
	S. W.	14	14	10	4	15	18	17	18	15	18	10	13	53
	S.	8	4	11	2	8	5	10	11	8	15	11	8	26
	S. E.	18	5	9	7	10	9	10	7	4	17	20	17	26
	E.	7	11	8	1	4	10	3	9	14	12	9	16	22
	N. E.	5	4	6	6	4	2	2	1	6	7	14	6	5
	Calm.	15	9	17	7	12	11	9	12	7	3	5	17	32
	Blank.	0	0	0	0	0	0	0	1	0	0	0	0	1
Savannah, Ga	N.	16	10	8	6	2	1	5	3	6	0	0	5	9
	N. W.	17	33	26	21	13	14	11	5	4	4	10	14	30
	W.	5	7	7	11	9	16	11	8	17	6	5	3	35
	S. W.	6	7	14	11	15	19	37	16	17	17	23	15	62
	S.	4	1	4	6	9	13	21	20	4	16	11	1	54
	S. E.	4	5	4	6	3	3	2	16	14	20	23	11	21
	E.	7	8	8	13	11	10	2	10	9	10	5	7	22
	N. E.	16	5	7	4	3	6	2	9	9	11	5	25	17
	Calm.	18	14	15	14	9	11	9	6	10	9	11	9	26
	Blank.	0	0	0	1	0	0	0	0	0	0	0	0	0
Shreveport, La	N.	16	11	13	7	8	5	2	4	5	3	10	6	11
	N. W.	6	16	12	15	10	10	12	6	3	3	3	2	28
	W.	2	7	4	6	7	4	15	9	3	4	2	0	22
	S. W.	0	3	3	9	3	13	11	9	7	15	12	7	33
	S.	3	8	7	13	7	17	21	19	16	18	5	12	57
	S. E.	15	15	12	11	13	20	12	17	23	17	8	15	49
	E.	9	4	9	7	14	12	7	17	11	11	17	10	36
	N. E.	8	9	17	8	12	5	4	8	5	10	16	29	17
	Calm.	34	17	16	17	10	7	6	4	17	12	20	9	17
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0
Saint Louis, Mo	N.	9	1	7	2	5	10	8	11	7	8	11	17	29
	N. W.	11	12	18	13	15	27	16	5	4	14	5	17	48
	W.	6	18	15	14	13	10	12	10	5	4	4	3	32
	S. W.	14	16	11	16	7	5	12	9	15	13	10	5	26
	S.	17	5	8	7	3	16	12	14	17	22	11	18	42
	S. E.	11	29	14	19	17	15	15	7	17	16	22	15	37
	E.	4	1	4	2	7	4	7	19	12	7	12	3	30
	N. E.	8	7	11	13	9	6	4	12	5	9	17	9	32
	Calm.	13	1	5	7	8	0	3	6	8	0	1	3	9
	Blank.	0	0	0	0	0	0	0	0	0	0	0	0	0

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Statement showing how many times the wind was observed blowing, &c.—Continued.

Station.	Wind.	October, '72.	November.	December.	January, '73.	February.	March.	April.	May.	June.	July.	August.	September.	Spring.	Summer.	Autumn.	Winter.
St. Paul, Minn.	N.	8	4	3	12	3	9	21	26	8	10	14	16	56	32	28	18
	N. W.	10	19	15	19	7	25	20	8	10	14	9	17	53	33	46	41
	W.	13	18	14	15	14	10	12	7	10	10	6	4	29	26	35	43
	S. W.	7	11	11	4	17	10	1	7	7	4	5	5	18	16	23	32
	S.	8	4	2	2	2	7	2	7	18	12	13	18	16	43	30	6
	S. E.	23	15	4	11	15	19	6	8	17	25	18	15	33	60	53	30
	E.	8	5	6	9	11	7	6	12	15	8	13	3	25	36	16	26
	N. E.	3	4	1	4	1	2	6	12	3	2	10	9	20	15	16	6
	Calm	13	10	21	17	14	4	16	6	2	8	5	3	26	15	26	52
	Blank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Toledo, Ohio	N.	9	1	1	5	2	2	5	2	3	5	11	5	9	19	15	8
	N. W.	13	3	6	6	13	8	6	3	6	3	6	9	19	15	25	25
	W.	13	28	26	17	19	28	13	4	8	16	8	15	45	32	56	62
	S. W.	12	30	19	20	24	19	14	17	22	19	12	17	50	53	59	63
	S.	18	9	6	17	10	15	5	15	8	15	9	19	35	32	46	34
	S. E.	4	4	3	4	3	7	4	12	13	8	14	12	23	35	20	10
	E.	9	4	5	7	8	3	18	17	18	14	13	6	38	45	19	20
	N. E.	8	3	7	7	11	5	16	19	9	8	17	4	40	34	15	25
	Calm	7	8	20	10	4	6	9	4	3	5	3	3	19	11	18	34
	Blank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Toronto, Canada	N.	18	2	9	10	7	5	13	20	10	10	14	11	38	34	31	26
	N. W.	14	10	15	11	10	23	15	8	10	12	2	14	46	24	38	36
	W.	5	32	30	25	32	26	7	8	4	9	3	16	41	16	53	87
	S. W.	4	14	14	15	7	11	10	7	6	13	4	9	28	23	27	36
	S.	3	1	2	3	0	5	5	9	4	12	14	10	19	30	14	5
	S. E.	4	5	1	2	3	0	2	4	8	6	9	8	6	23	17	6
	E.	9	3	1	14	13	12	22	22	25	7	15	8	56	47	20	28
	N. E.	6	3	7	6	8	10	4	7	7	4	12	4	21	23	13	21
	Calm	30	20	14	7	4	1	12	8	16	20	20	10	21	56	60	25
	Blank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vicksburgh, Miss	N.	13	22	22	23	11	5	5	6	0	7	4	22	16	11	57	56
	N. W.	5	11	7	10	7	12	10	9	4	6	6	6	31	16	22	24
	W.	2	3	3	9	3	3	10	7	5	10	4	1	20	19	6	15
	S. W.	3	6	6	5	9	16	7	12	9	9	2	9	35	20	18	20
	S.	3	5	5	12	12	16	28	19	8	7	9	4	63	24	12	29
	S. E.	16	12	17	16	10	18	18	12	15	8	9	10	48	32	38	43
	E.	7	9	10	7	11	13	4	7	6	4	4	9	24	14	25	28
	N. E.	11	5	10	6	11	5	1	7	0	0	5	8	13	5	24	27
	Calm	33	17	13	5	10	5	7	14	43	42	50	21	26	135	71	28
	Blank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Virginia City, Mont*	N.	0	0	2	5	....	....	....	....	....	....	....	....	....	....	....	....
	N. W.	7	4	6	8	....	....	....	....	....	....	....	....	....	....	....	....
	W.	14	19	10	21	....	....	....	....	....	....	....	....	....	....	....	....
	S. W.	11	17	15	14	....	....	....	....	....	....	....	....	....	....	....	....
	S.	5	6	13	7	....	....	....	....	....	....	....	....	....	....	....	....
	S. E.	5	1	14	6	....	....	....	....	....	....	....	....	....	....	....	....
	E.	13	21	10	14	....	....	....	....	....	....	....	....	....	....	....	....
	N. E.	0	0	1	0	....	....	....	....	....	....	....	....	....	....	....	....
	Calm	36	22	22	18	....	....	....	....	....	....	....	....	....	....	....	....
	Blank	0	0	0	0	....	....	....	....	....	....	....	....	....	....	....	....
Washington, D. C.	N.	15	3	13	11	12	9	8	8	6	7	9	8	25	22	26	36
	N. W.	16	20	24	17	23	31	30	15	12	17	17	21	76	48	57	64
	W.	16	23	13	8	5	13	4	5	2	11	3	0	22	16	39	26
	S. W.	4	6	5	9	3	6	6	8	18	16	11	8	20	45	18	17
	S.	16	16	15	9	13	18	12	18	15	22	10	24	48	47	56	37
	S. E.	10	6	3	3	4	3	2	6	13	6	6	7	11	25	23	10
	E.	2	6	3	4	3	1	9	8	1	1	6	4	18	8	12	10
	N. E.	8	3	3	21	7	8	14	19	15	2	16	10	41	33	21	31
	Calm	6	7	14	11	14	4	5	6	8	11	15	8	15	34	21	39
	Blank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wilmington, N. C.	N.	16	13	14	12	10	7	5	7	5	2	1	8	19	8	37	36
	N. W.	16	15	20	18	12	10	10	5	10	3	1	7	25	14	38	50
	W.	5	11	7	8	10	16	12	3	7	7	2	2	31	16	18	25
	S. W.	12	9	15	18	16	25	37	15	12	24	26	11	77	62	32	49
	S.	3	5	2	11	8	6	5	9	9	8	6	1	20	23	9	21
	S. E.	11	5	4	4	6	7	10	15	16	6	5	11	32	27	27	14
	E.	6	8	4	9	8	1	3	13	3	2	4	8	17	9	22	21
	N. E.	14	16	20	9	8	6	2	7	7	6	3	33	15	16	63	37
	Calm	10	8	7	4	6	15	6	19	21	35	45	9	40	101	27	17
	Blank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*No observations from February 23d to June 15, inclusive, and incomplete to September 30, 1873.

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Statement showing how many times the wind was observed blowing, &c.—Conti

Station.	Wind.	October, '72.	November.	December.	January, '73.	February.	March.	April.	May.	June.	July.	August.	September.	Spring.	
Woods Hole, Mass.*	N.	....	....	....	2	7	3	5	7	6	7	3	5	15	
	N. W.	....	....	....	13	14	14	3	2	2	3	7	18	19	
	W.	....	....	....	9	19	23	20	11	5	7	5	3	54	
	S. W.	....	....	....	14	14	23	19	26	38	38	30	25	68	1
	S.	....	....	....	8	1	4	8	7	12	12	6	7	19	
	S. E.	....	....	....	8	3	3	5	5	5	4	9	17	13	
	E.	....	....	....	11	8	7	11	18	11	9	19	6	36	
	N. E.	....	....	....	3	5	4	6	3	7	3	6	7	13	
	Calm	....	....	....	15	13	12	13	14	4	10	2	2	39	
	Blank	....	....	....	0	0	0	0	0	0	0	0	0	0	
Wytheville, Va.†	N.	....	....	....	....	0	1	1	2	1	6	7	5	4	
	N. W.	....	....	....	....	11	20	8	8	3	10	3	9	36	
	W.	....	....	....	....	28	32	30	14	14	18	15	15	76	
	S. W.	....	....	....	....	12	13	7	2	8	11	8	1	22	
	S.	....	....	....	....	2	7	3	3	2	6	2	1	13	
	S. E.	....	....	....	....	3	1	3	5	6	0	1	9	9	
	E.	....	....	....	....	2	2	6	17	12	2	16	6	25	
	N. E.	....	....	....	....	6	2	0	1	0	2	0	2	3	
	Calm	....	....	....	....	20	15	32	41	44	38	41	42	88	1
	Blank	....	....	....	....	0	0	0	0	0	0	0	0	0	
Yankton, Dak.‡	N.	....	....	....	....	....	....	28	17	11	12	13	4	....	
	N. W.	....	....	....	....	....	....	14	19	4	3	1	21	....	
	W.	....	....	....	....	....	....	10	7	5	7	11	9	....	
	S. W.	....	....	....	....	....	....	5	6	10	8	4	8	....	
	S.	....	....	....	....	....	....	8	7	35	27	13	10	....	
	S. E.	....	....	....	....	....	....	3	13	12	8	11	12	....	
	E.	....	....	....	....	....	....	7	13	3	14	27	4	....	
	N. E.	....	....	....	....	....	....	10	18	4	6	4	8	....	
	Calm	....	....	....	....	....	....	5	3	6	8	9	14	....	
	Blank	....	....	....	....	....	....	0	0	0	0	0	0	....	

* Observations began January 1, 1873. † Observations began January 19, 1
‡ Observations began April 1, 1873.

PAPER 14.

REPORT OF OBSERVATIONS MADE AT THE ISLAND OF SAINT (BEHRING SEA,) BY OBSERVER C. P. FISH, SIGNAL-SERVICE, FROM JUNE 5, 1872, TO MAY 31, 1873.

ISLAND OF SAINT PAUL,
Behring Sea, April

SIR: This final report that I have the honor to transmit is deemed expe medium, not of exhaustive analysis or even of approximation to perfect re rather of conveying a general synopsis of the meteorological features incide area.

ANALOGOUS FEATURES OF TWO AREAS.

Naturally resembling that of the North Atlantic Ocean, the climate of Be presents but few of those more wonderful electric and other phenomena c climes; but, as fields for practical research, I can conceive of none more valu Iceland of the Atlantic and Saint Paul Island of the North Pacific. Similarly in relation to ocean currents, these areas can be readily pictured in the imag aerial maelstroms, where, throughout the year, the elements are scarcely eve and storm succeeds storm with violent rapidity and complex change.

PHENOMENA OF UPPER CURRENTS.

The arrangement of observations on the upper currents, which I have atte by no means perfect. The entries in the nephelogical and phenomenal re

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rather in the form of such daily memoranda as apply to the movements of storms and the general phases attending. Voluminous as these reports already appear, a truly perfect entry would involve more rigid system, so constant is the cloudiness and various the elemental changes, and, thereby, so comprehensive the phenomena daily presented in this climate, that a record of all might discourage the most cursory review. Nevertheless, after a sort of philosophical assumption that all the obscure laws of nature, whether organic or intellectual, are to be developed during future ages, not for, but by, the mind of man, it occurs that, to establish from theories the laws governing the progression and movements of storms, research into the most minute and interior phases thereof should be prosecuted with unceasing vigor.

NEPHELOGICAL OBSERVATION.

Observations upon the clouds alone as indicative of currents and certain barometric or other conditions can be so extended that, concerning my own memoranda, I would excuse their tedious and perhaps monotonous length through evidence of their value as simply records for reference in the investigation of any one particular disturbance.

INTERIOR PHENOMENA.

Another object, independent of immediate practical value, appears in their continuance. Recognizing the necessity, in any system of observations, of a correct method at the beginning, and awaiting instructions and advice wherein I may have gone astray, I had deemed these minor phenomena, interesting as they are to myself, of considerable general value, also, as disciplining the attention and leading the perceptions more readily from effect to cause.

OBSCURITY OF CERTAIN RELATIONS.

Although a more lucid review might be anticipated from a station so distant and disconnected, any discussion of the laws governing these storms, and, particularly, the electrical condition of these centers, must be necessarily premature, if not impracticable.

ATMOSPHERIC PRESSURE.

The area of low pressure prevailing during winter over Behring Sea is certainly very extended, as evidenced by former observations at Sitka and those records from the mouth of the Anadyr which I have transcribed, and transmit for reference. This remarkable depression presents curves and variations which, although not very abrupt, are of extreme interest in connection with the atmospheric changes.

VARIATIONS OF PRESSURE.

The difference between the pressure of any two successive months, as December, 1872, and January, 1873, is often extreme and a true index of other corresponding conditions both thermal and hygrometric.

LOW WINTER PRESSURE.

It will be observed that the low average of the winter months is produced by extreme minima attending storms; in other words, the normal pressure is high. I do not here allude to those considerable periods in which the barometer has maintained a height above 30.40 or 30.50, but rather to those serene intervals in which the pressure, entirely uninfluenced by any adjacent depressions, remains, for days together, above 30.00, as in the summer months.

ATMOSPHERIC WAVES.

Otherwise than from the great daily and monthly variations, the barometric movements appear to resemble those of temperate climes. The great depressions move forward at rates varying according to that of the cirrus cloud, as indicated in nephological report, and the high intervening ranges are traced according to the lesser oscillations of the mercury that so frequently occur.

INTERIOR STORMS AND EXTENDED AREAS OF DEPRESSION.

During each of two months, December and February, depressions occurred which doubtless extended over the entire area of ocean north of the fiftieth parallel. These appeared for many days stationary, and reference to the journal indicates a series of minor depressions, to which, considering their characteristics and attending phenomena, I have applied the name and importance of subordinate "eddies," as will be noted under the head of storms.

THERMAL CONDITIONS.

The range of temperature over the area of which Saint Paul Island is representative, is most intimately related, as might be anticipated, to the extreme high degree

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of humidity which prevails even through the winter months. In this element of heat we notice, particularly, the influence of ocean-currents, which appears similar to that causing the isothermal deviations of the North Atlantic.

MEAN WINTER TEMPERATURE.

The past winter is said to have been "seasonable," but a series of former thermometric records has fallen under notice which indicates that during this period a higher temperature sometimes prevails, and thus, perhaps, a lower pressure. I am confident that a series of years would throw the isothermal of 20° considerably south of this island.

RANGE OF TEMPERATURE.

The range of temperature, both daily and monthly, is subject to greater variations than in the summer season. During a period of two or three months the sea northward is completely ice-bound, whence it might be inferred that the depressions occurring on the westerly curves of storms are quite as abrupt and extreme as in the continental interior. Results do not justify this conclusion, as the thermometer rarely attains a minimum of — 10°, and it is quite evident that, during the period referred to, the island still lies within the influence of the warm currents southward, the ice-boundaries extending but a short distance in that direction.

ABRUPT VARIATIONS.

The more rapid variation occurs on the easterly quadrants of those storms from southwest, in which the indrawn southeast current causes the temperature to rise quickly to near or even above 32°.

GENERAL UNIFORMITY OF TEMPERATURE.

With exception of the less abrupt depression on the westerly quadrants produced by the northerly surface currents, the temperature remains otherwise remarkably equable, and, during even the days most free from cloud, the thermometer, if, at daylight, near or below zero, continues near that degree until the sun attains the meridian, even although it is near the vernal equinox, and the wind comparatively light.

AN ISOTHERMAL OF ALASKA.

The winter isothermal of Sitka evidently intersects this meridian about one hundred miles south of the Aleutian Isles.

THERMAL MAXIMA AND MINIMA.

The winter maximum of temperature is said to very rarely attain 40°. The minimum has never been known to extend below —14°.

HIGH TEMPERATURE OF NOVEMBER AND DECEMBER.

November and December are generally noted for high temperature, and the absence of ice during those months is naturally suggested as among the known causes in advancing, as in the interior, the winter minimum to a period one or two months beyond the solstice.

PERIOD OF GREATEST THERMAL DEPRESSION.

Casual observers have attempted to indicate the month or time of greatest cold. Without disputing statements conflicting in themselves, it is evident that this can be established only by extended observations. During the past winter March, with a mean temperature of 12°, was the coldest month; but an examination of other prevailing conditions points to this instance as possibly exceptional.

TEMPERATURE OF SURFACE CURRENTS.

I have entered in phenomenal record crude observations on the general course of temperature corresponding with surface wind. These I would henceforth discontinue as an unnecessary addition to Form 4.

TEMPERATURE OF SOUTHWEST CURRENT.

The only currents worthy of note by reason of temperature are those from southwest and east-northeast. The southwest current moves from the direction of the warm Kuro Siro; nevertheless, the southeast wind of the other southerly quadrant which frequently attends rain, no more quickly veers to southwest than does the temperature materially decrease and the rain turn to snow. The southwest wind, even when independent of its rotary relations to a storm's center, and, when once or twice observed to be permanent from that direction, is also of several degrees lower temperature than the average of the southeast current.

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TEMPERATURE OF EAST-NORTHEAST CURRENT.

The temperature of the east-northeast wind exhibits a rather higher temperature, I think, than that of the current from due east; but this is a subject for further observation.

RELATIVE HUMIDITY.

The hygrometric conditions prevailing during the winter are but little at variance with those of the summer. So frequently, indeed, have degrees of saturation to be recorded, than when the difference is less than one degree, I have entered the humidity as deduced from a fractional part thereof.

HUMIDITY OF VARIOUS SURFACE-CURRENTS.

The north wind is laden with the least moisture, which is still relatively great. The following is the order in which the winds vary with reference to an *increase* of moisture: North, northeast, northwest, west, southwest, south, east, and southeast. This does not embrace, however, the east-northeast wind, which almost invariably advances a degree of saturation.

PHENOMENAL INCREASE OF HUMIDITY.

For several weeks in the fall months I noticed, during irregular precipitation, an invariable increase in humidity and the violence of the showers whenever the wind veered at all westward from due north. A column therefor was accordingly entered in one of the reports, but, after the succession of the winter months the phenomena was no longer repeated. This column I have continued, however, that it may be noted, in the ensuing season, whether such relations were purely co-incidental, or owing to sea-currents subsequently closed by ice.

ARIDITY OF NORTHEAST CURRENT—ITS RESEMBLANCE TO THAT OF WESTERN EUROPE.

The aridity of the northeast wind remains to be noticed for its remarkable correspondence to the northwest wind of the States, and its close analogy to the northeast current of western Europe. Whenever the center of a storm moves south of the island, that current is thrown into action, and its cold aridity speedily condenses the upper clouds, changes the storm "scud" stratus to characteristic cumuli, and in every manner denotes the presence of the westerly quadrants.

ORDINARY CHARACTERISTICS OF SURFACE-CURRENTS.

Concerning the winter surface-currents in general, in nautical idiom, "it is always blowing a gale." During the season of the year under consideration, the intervals between the storms are so brief, and the north winds of retreating storms so persistent, that the expression conveys almost literal truth. I have deemed it expedient to refer, in the following general manner, to the characteristics of each of these surface-currents, in order to aid in a comprehension of the ordinary winter weather of the island.

NORTH WIND.

The north wind naturally prevails on the westerly quadrants of storms, but settles more frequently in that quarter when the center passes south of the island. When the center passes north or northwest, and the wind veers by way of southeast and south, conditions, thus far, have appeared so complex and other storms so quickly succeed that the current seldom veers around as far as north, or even northwest. The north wind is characteristic in its low temperature and the irregular showers of receding storms from west-northwest. In this climate it is almost invariably attended by a cumulus which extends around the horizon, or, more usually, appears as a full, gray, monotonous stratum. This wind frequently varies or oscillates between north-northwest and north-northeast, without appearance of upper cloud or other disturbing conditions. Its velocity is usually about twenty-five miles per hour, but frequently, for days together, it moves at the rate of thirty to forty-five miles.

NORTHEAST WIND.

The northeast wind resembles that from north, but, after its speedy condensation of upper clouds, it is seldom attended by profuse showers. When persistent it is not vigorous.

EAST WIND.

The *due* east wind seldom prevails. The currents of aspiration caused by approaching storms usually spring from east-northeast, or some point to the south of east-southeast.

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EAST-NORTHEAST WIND.

The east-northeast wind attends nearly all storms from the west-northw demands attention in their connection. Its average velocity is about thirty-ei an hour, but on "occasions of state," as during the storm of February 8, it as rific strength and confirms its power by hurricane violence. As in January, times continues for many days, forming, with its characteristic phenomena, the outer fringe of quadrants of storms prevailing in succession on far-distant parallels.

SOUTHEAST WIND.

The southeast wind, indrawn towards approaching storms, is frequent du months of November and December, and during some winters evidently thi the season. This current, so prevalent at Sitka, is also frequently recorde Anadyr Transcript, sometimes transferring the mercury quickly from — 30° t It seldom moves at a less velocity than twenty-five miles per hour, more gen thirty-five; and frequently, for a few hours, from fifty to seventy miles. Its duration is not so great as that of the east-northeast wind, and in the ma storms it speedily veers to southwest.

SOUTH WIND.

The south wind resembles the southeast, but is comparatively infrequent, a prevails from that direction temporarily, during a gradual veering, or, if set usually has several degrees of so-called "westing," partaking of the nature of t west wind. Its velocity is moderate.

SOUTHWEST WIND.

The southwest wind is the great surface-current pushing toward the storm that pass north of the island. It is usually the extreme limit to which the wi when other storms are about to succeed, and, with regard to its phenomena, i of strict attention. Its vigor is from thirty to thirty-five miles, although at great as sixty-five or seventy miles per hour.

WEST AND NORTHWEST WINDS.

The west and northwest currents have been, thus far, the least frequent an ous of all. General phenomena indicate these characteristics as normal, but point the evidence of those residing on the island is conflicting. The preva high westerly winds would necessitate atmospheric conditions, which are no myself, readily imaginable.

PRECIPITATION.

Observations on the character and amount of precipitation in this area are by interesting results. It will be at once noted how entirely disproportionat amount compared to the relative frequency and ominous character of cl The most profuse seldom affords a measure exceeding forty hundredths, (.40,) it frequently occurs that every day of an entire month is attended by light p tion of some form, and even if the entry of "rainy days" be restricted to which at least .01 falls, the number is surprising. A large amount of this p tion is furnished by the front quadrants of general storms, although long c showers of westerly quadrants add a remarkable share, especially during the of January, February, and March; the hail and snow of cumulo-stratus atten storm-center is by no means inconsiderable.

PRECIPITATION, IRREGULAR AND CONTINUOUS.

In phenomenal reports I have classified the precipitation as *irregular* or *co* and thus far a large portion of the latter has fallen during the night.

FORM OF RECORD.

By reason of the light quantities, resulting from showers and consequ from evaporation, I have entered the former thrice daily.

FORM OF PRECIPITATION.

By far the greater amount, during the winter months, is in the form of sno ing immediately into the sea. In continuous snow, however, the southe seldom fails to so increase the temperature that rain can and does fall at a during the season.

SIZE OF DROPS, FLAKES, AND HAIL-STONES.

The rain-drops are of comparatively small size, and never descend in torren the mainland coast or interior.

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The size of snow-flakes varies as elsewhere; the fine frost-snow of the arctic regions is occasionally recorded during extreme thermal depressions, but is seldom of sufficient amount to reflect even imperfect parhelia, although sometimes descending from a cloudless sky. The hail is of the white opaque variety, termed sleet, and varies in size according to the strength of conditions hereafter referred to; the study of its texture is not to be disregarded.

SNOW-MEASUREMENTS DURING TEMPESTS.

In the journal of February 8 I have referred to the difficulty of snow-measurement in stormy climes, the frequent inutility of the rain-gauge, however admirably constructed, and the extreme care and judgment requisite for accuracy. Partial *estimate* becomes absolutely necessary during certain storms, but, in order to secure more proximate results than is usual under such conditions, I adhere to a series of *considerations* entered on the date referred to.

STORMS OF BEHRING SEA.

The subject of storms presents a field of amazing latitude, and the numerous results of records, even with the exclusion of discussion and *cherished theories*, can scarcely be all embraced in a review of this character.

Somewhere in course of reading I have noticed the assertion that the signal-service comprised, among other observers, a large proportion of *unsuccessful* merchants. Discarding, simply by allusion thereto, the unintentional animadversions, I cannot conceive how those unfortunate, *through inability*, in the maze of commercial venture, could ever anticipate success in analysis of the almost interminable series of phenomena attending atmospheric storms, and thence weave theories perfect and firm.

FREEDOM OF WINTER FROM FOG AND CONSEQUENT FAVORABLE VIEW OF UPPER PHENOMENA.

So comprehensive are the changes and attendant phenomena so openly presented to view during the winter season, are the numerous and intricate cloud-currents over Behring Sea, that a failure to obtain the secret of the causes operating to produce a storm-progressive movement alone is indicative of the innate strength of meteorological science, and declares that the attack of the very front necessitates not only the acumen of commercial talent, but all the practical tact that applies to law or mutual philosophy.

TWO CLASSES OF GENERAL STORMS.

The ordinary records point very conclusively, however, to certain general results. Of the storms prevailing during winter there are two sorts, both cyclonic; one whose general course is from west-northwest, and the other from any point between west-southwest and south.

WEST-NORTHWEST CLASS OF STORMS.

The storms from west-northwest naturally appear to proceed from near the Asiatic coast. They occur at any season of the year, but more frequently in the later months of winter, displacing, as it were, the succession of those from southwest. Their origin may be, at least, as far westward as the coast-line, inasmuch as they are of fully developed and sometimes excessive vigor on arrival at the island.

DIRECTION OF ROTARY CURRENTS—DURATION.

Although their course is occasionally from many degrees north of west-northwest, the indrawn rotary current is generally from east-northeast. When the center passes north the wind may rise from east-southeast; seldom or never from due east. The duration of this storm is from one to three days.

PREMONITORY INDICATIONS.

The manner of initiation is peculiar to its class. Two or more days of comparative inaction elapse, during which there is seldom visible, at night, any appearance of auroral glow; but, on the night preceding the storm, that phenomenon is frequently observed as recorded in journal. During the night or following day, humidity increases, the barometer falls, and, after the commencement of the rotary current, the temperature increases, though not to so great a degree as in the southwest class of storms.

CIRRUS ADVANCE.—CIRRUS OF ANOMALOUS ALTITUDE.

The cirrus advance is, through practice, easily recognized among any other clouds and frequently appears many hours previous to the barometric fall. It is sometimes accompanied by cirrus compounds and overspreads the heavens very gradually. When cirro-stratus or cirro-cumulus alone appear moving, as they never do in the commence-

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ment of southwest storms, along the path ofdisturbance, those clouds, during and after extension, are sometimes obscured by a peculiar form of cirrus which must be of singularly low altitude.

PRECIPITATION ATTENDING THE EAST-NORTHEAST CURRENT.

The wind increases in this storm gradually and regularly, veering slowly at the center to north by northeast, or by south. The precipitation is remarkable for the small size and piercing character of flakes which, when fallen, have to the touch a consistence of finely ground meal or flour. It is surprising that when the wind happens to veer toward the southeast, these flakes enlarge and assume a texture as normal as when it veers the other way.

MARKED PHENOMENA OF THE EAST-NORTHEAST CURRENT.

There is another similar phenomenon incident to this storm, or rather to the east-northeast current, quite worthy of note. At a temperature as low as 22° the snow frequently turns to rain; now, we will suppose the temperature to remain uniform; if the wind veers by way of northeast the rain turns to snow, which is not remarkable, but it is certainly singular that the rain also changes to snow if the wind veers to southeast, or even approaches within 5° of east. I have even noticed, under the latter conditions, the change to snow when the temperature *increased* to 32°.

CURRENTS, AERIAL AND OCEANIC.

These phenomena seem to indicate that, eastward of this island, the warm currents of the sea are thrown over into Bristol Bay, producing there an area of increased warmth and humidity. This suspicion is supported by other phenomena that attend this wonderful storm-current. It is uncertain, thus far, whether the oceanic currents are deflected by ice toward the area referred to. These east-northeast winds occurred at a very early period during the fall. Summer observations will assist in determination.

CHARACTERISTICS OF THE EAST-NORTHEAST CURRENT.

During the prevalence of this wind fog sometimes appears from east-northeast, and whenever cumuli moving from east or northeast assume a new direction from between those points, their texture is immediately changed to the scud stratus, if the wind is violent, to the uniform fog stratus if moderate. This stratus has but little elevation, and, on one occasion, (temperature 24° and no upper clouds,) I noticed fine rain when it lay at an altitude of less than 600 feet, and when its temperature must have been 8° above that at the surface of the earth.

"FROZEN FOG."

Moreover, with this wind, a frozen precipitation sometimes appears, which the people of the island call "frozen fog."

LIMITS OF THE SINGULAR EAST-NORTHEAST CURRENT.

Such are the phenomena incident, not strictly speaking, to the west-northwest storm, but to its surface-current, and they are worthy of continued attention. They only accompany that current when the latter is from between east 8° north and northeast 10° east. The residents and natives call the storm itself a northeaster. The northeast wind is of a widely different character from the east-northeast.

MOVEMENTS OF CIRRUS IN WEST-NORTHWEST STORMS.

Although, during the passage and disappearance of this storm, cirro-stratus and cirro-cumulus conform to the new surface-currents, the cirrus-cloud itself usually retains its original direction, presenting but few of the changes and dispositions which it exhibits in storms from southwest.

FINAL CHARACTERISTICS OF THE STORM.

Storms from west-northwest do not closely succeed each other, and their westerly quadrants constitute the most lengthy periods of severity. Finally, differing widely from those of the southwest class, their precipitation is frequently light on account of the fineness of the rain or snow.

STORMS OF THE SOUTHWEST CLASS—EVIDENT ORIGIN FROM CYCLONES OF CHINA SEAS.

Presented now for consideration, the southwest class of storms includes all those violent commotions whose origin is in the vast extent of ocean lying in a direction from west-southwest to south. These are, above all others, the storms which impart to this sea its tempestuous clime, and whose midnight fury often hurls, with almost volcanic strength, the mountainous waves of ocean against the island's rocks and cliffs. Rising

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from the direction of the warm Kuro Siro, or Pacific Gulf Stream, they move along its course, assuming their greatest frequency in November, and a review of their general phenomena cannot but suggest their real origin to be from those violent cyclones that curve around the China Seas.

PREMONITORY INDICATIONS.

Under a great variety of conditions do these storms appear before the island. At times, a dry, cold-appearing cumulus-stratum from north is suddenly dispersed through extension of the cirrus from southwest, constituting the storm-advance. Sometimes, though not frequently, a storm from west-northwest appears to converge on one from southwest, in which the latter asserts its superior strength, and mingles with the former or breaks it up. More frequently, however, the first indication of its approach is a cirrus-trace along the horizon. This advance is seldom accompanied by cirrus compounds *from its own direction*, as in the storm from west-northwest, but the true current of cirrus itself extends with marked rapidity and ominous aspect.

PHENOMENA OF SOUTHWEST-STORMS.

The barometric fall is proportioned to this rapidity of approach, and the attending gale from southeast attains its maximum velocity, frequently, but a few hours after the initiatory indications. Storms of this class are of comparatively brief duration.

DECEPTIVE SOUTHEAST CIRRUS-CURRENTS.

It will be noticed, in the earliest dates of the journal, that I was led into the error of supposing many of these storms to progress from the southeast. This resulted from observing, during the progress of the storm, its cirrus-stratum, or traces thereof, moving from a southeast direction, when, in reality, this new movement of the cloud was caused by its coming within exposure to the surface-current.

ORIGIN OF ANOMALOUS CLOUD-CURRENTS AND FORMATION OF CIRRUS COMPOUNDS—FREQUENT CONFORMATION OF UPPER CLOUD TO SURFACE-CURRENT.

The observations of November 18, in journal, detail at full length the manner of these singular changes and also the origin of cirro-stratus and cirro-cumulus. It is especially worthy of note that after the advance quadrants of both classes of storms have moved beyond the island and the intricate upper currents again appear, the latter frequently evince this remarkable disposition to assume the direction of the surface-wind, and the cirro-cumulus of the west-northwest storms is almost invariably thus affected. In the storms under consideration, when the center approaches, and even after the wind has veered to southwest, the traces of cirrus retain a direction from east or southeast during the period they remain in view, which is usually brief.

CIRRI OF GREAT ALTITUDE.

At this step in the storm's progress, however, on one or two occasions, light traces of cirri have been observed, of great altitude and moving along the true path of disturbance.

STORM-CENTERS OF THE NORTH PACIFIC.

But these phenomena introduce the observer to an area of the storm more calculated to arouse wonder and speculation than any other possible combination of atmospheric conditions that prevail over Behring Sea.

The elements having exhausted their fury of the easterly quadrants, the wind quickly veers to southwest, dispersing the stratus "scud;" the fragmentary traces of retreating cirrus undergo all that remarkable transformation and disposition referred to in November's journal, and then, along the southwestern horizon, glimmers the sharp well-defined boundary of the cirro-stratus whence, beyond, lies a circular area which is the wondrous sun-lit storm-centre of the North Pacific, the investigation of whose phenomena is worthy of years and wherein are concentrated all the mighty forces of atmospheric action.

PHENOMENA OF THE STORM-CENTER—SPLENDOR OF THE ELECTRIFIED CUMULO-STRATUS ATTENDING THE STORM-CENTER.

The barometer is now at its minimum, and that singular element called *haze* assumes a peculiar appearance and increases from one or two, to seven, eight, or even ten in the *scale of density*, extending, however, but little distance above the earth. The sun having appeared, the island glows with a tinge resembling that of Indian summer, and naught remains, for a few moments, but the mercury of the barometer to indicate, to the casual observer, the focus of a widely-extended cyclonic storm. And now, wide-spread throughout the heavens and jutting above the horizon in all that majesty that

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nature alone can lend, frown the dense and apparently electified forms of the c
stratus. Nowhere, from the Atlantic to the Rio Grande, or from Lake Superior
north to the Bay of Mobile on the south, where in summer these imposing f
vapor mass so grandly around the horizon, assuming a characteristic density,
witnessed aught to compare, either in beauty or density, with those stupendou
mits of the cumulo-stratus which fill the centers of these November and De
storms.

CENTER WELL-DEFINED.

Confined within the limits of furious storm around, no imagination can
justice to their grandeur. Piled summit over summit they threaten every hour,
though it is, terrific thunder-showers or visible electric bolts to appal the sens
no *violent* storm issues from the vaporous battlements and lurid depths, no
electric flash ever darts from out these apparent "thunder-clouds" that seem
wandered from some tropical clime. The commanding forms move silently alo
path of progression, monuments, as it were, of the mighty force that imparted
their rocky density.

HAIL OF THE CENTRAL CUMULO-STRATUS.

At intervals, these cumulo-stratus precipitate a piercing hail, the intensity a
of which vary rather according to the strength of the general storm and the ap
symmetry of the storm-center, than the density of the immediate cloud.

"CLUSTER" RESOLUTION OF THE CUMULO-STRATUS.

It is well known that, in the interior, the electrified cumulus or cumulo-str
attended by a peculiar resolution, sometimes uniform in appearance and rese
nimbus or dense cirrus. A similar cloud transformation occurs in or near these
centers, to which I have applied, for distinction, the name of "cluster" resolut
the formation not unfrequently resembles a cluster of fruit.

ASCENDING CURRENTS OF THE STORM-CENTER.

This peculiar form, ascending and resulting from cumulo-stratus, frequently
farther and becomes a cirrus, exhibiting phenomena as described, for instance,
nal of December 16, 1872.

CIRRUS AND ITS DISPOSITION—ASCENDING CURRENTS.

Many truths, otherwise established, are confirmed by the cloudiness which
diately encircles the storm-center. As an instance, peculiar movements in an
the center of cirrus and its compounds, together with their sudden dissipation
prove the spiral movement of the indrawn currents. Again, briefly stated, asc
aerial currents of the center are indicated by the rise of cumulo-stratus into "c
resolution and, subsequently, into cirrus.

PECULIAR TRANSLATION OF CIRRUS.

Observations have revealed the singular fact that, when the center appe
upper clouds bounding it on the easterly quadrants have a frequent movemen
east, *which is only apparent*, for, in truth, a mysterious translation continues *tow*
east, or rather northeast, so that where a casual observer might anticipate
total obscuration of the heavens from eastward, he discovers, to his surprise, th
cession of all these deceptive cloud-currents beyond the eastern horizon. All t
cirri which have this apparent movement into the centre from east are dissipate
a furnace.

OBSCURITY OF PROGRESSIVE ACTION.

The unsolved question frequently recurs, what invisible force propels forw
vast concentration of elements whose upper cloud-currents indicate in the com
ment of the storm the path of disturbance, but, when bounding the center or
the western quadrants, furnish no longer any tangible clue to the direction
progressive movement?

CURRENT OF GREAT ALTITUDE FROM WEST-NORTHWEST.

In the journal of November I have alluded to the possibility of an extrem
west-northwest current which, as constant and generally unattended by clo
some connection with these storms from southwest. I was led into what was
an error by observing in the first of the series, far above the storm, cirrus from
west traces of that cloud from west-northwest. Unable to determine the relat
a current of at least five miles altitude, I abandoned, for the present, a fruitl
sideration.

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WESTERLY QUADRANTS OF SOUTHWEST STORMS—SOUTHWEST SURFACE-CURRENT.

Several centers of storms fortunately passed over or near the island, occupying in translation from eight to forty-eight hours. The westerly quadrants arrive with a renewal, in most instances, of symmetrical storms of precipitation and a tendency of the wind to veer more to the west and naturally to the northwest or north. But the succession of these storms is usually so rapid and sometimes so complex that the surface-current generally remains oscillating between west-southwest and south-southwest. Its action has been found highly deserving of notice, especially in connection with other phenomena, as indicating the character of approaching changes.

EXTENDED AREAS OF BAROMETRIC DEPRESSION.

Reference to the widely extended and extreme depressions now becomes necessary in connection with this southwest current of the westerly, or rather southwesterly, quadrants. Two of these, as stated in a former paragraph, have occurred during the winter and have proved so persistent that they can, by a certain composition of science, be designated as *chronic* in contradistinction to those in which the low pressure is of little duration.

INTERRUPTION OF SURFACE-CURRENT BY CERTAIN "EDDIES" OR SUBORDINATE STORMS.

These extended depressions are initiated by a storm of ordinary violence, and the wind veers regularly from southeast to southwest. The barometer falls perhaps to 29.30, but, instead of rising, it continues low and the veering wind "halts" on attaining southwest, veering no farther. Then, on several successive days follows a *series* of storms equally severe, perhaps, with the initiatory one; but, during each of these, the mercury falls a few tenths (say to 28.80) from the *established* low pressure of 29.30, which latter height is regained in the intervals between the storms. The latter bear every characteristic of subordinate "eddies" in a *general* depression. The spaces between these are ordinarily occupied by the dense cumulo-stratus, which, however, is not so well defined as in a single symmetrical storm.

ROTATORY CURRENT OF GENERAL DEPRESSION.

What supports this affirmation of *interior eddies* is that, after each one, the wind having, previous to its appearance, been naturally *drawn back* to the southeast, advances, *after veering*, farther and farther toward due west, so that when the last *interior* storm has disappeared its direction is fully west, if not west-northwest, just as if the great rotatory current of the general depression had been gradually veering during all these days from southwest to west-northwest or north.

STORM-WAVES.

It is the occasional violence of wind attending the westerly quadrants of these storms from southwest that produces the light storm-waves referred to in journal.

INFERIOR BUT EVIDENTLY DISTINCT CLASS OF STORMS.

There is one other inferior sort of storm from southwest that appears to be independent of the general class of southwest disturbances, as occurred during the latter days of February. These sometimes precipitate considerable, but are light and unattended by the phenomena of other storms, or even a change of wind.

NEPHELOGICAL PHENOMENA—FREQUENCY OF CLOUDS—RECORDS OF REFERENCE.

Close attention has been devoted to the subject of clouds. Any possible connection between a study of their texture and the practical concerns of life is, doubtless, to the world at large, a matter of merriment. Whether or not, for assistance in the operation of more practical laws, the very texture of clouds varies and consequent research thereinto is at present requisite, it is beyond a doubt that, owing to their great relative frequency over Behring Sea, they are faithful indicators of the upper aerial currents, and I have therefore ventured to classify, and enter for reference, their phenomenal indications as far as they can be made to bend toward the solution of questions that may yet arise.

CAPTION OF REPORT.

For the caption of this report, which includes only observations on the clouds, I have selected the word "*νεφέλη*," and, under the impression of having seen the derivative, *nephelogical*, I deemed it admissible.

CONCERNING RECOGNITION OF ATMOSPHERIC CONDITIONS BY MEANS OF CLOUD-TEXTURE.

It has been impracticable, as in the instance of the cirro-cumulus, to enter rigidly in Form 4. Without attempting, at present, ulterior deductions from the brief records thus far at hand, I would note the important truth, doubtless already known, but developed particularly in this area, that similar conditions in the progress of, or intervals between, all storms are characterized by corresponding aspects of cloudiness.

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CORRESPONDING NECESSITY OF EXTENDED CLASSIFICATION—CHARACTERISTIC FORMATIONS IN CLOUDS.

This undeniable premise involves a most extended classification, which, nomenclature, I have, during the winter, mentally performed. Thus, (excludi bus,) the remaining six cloud formations, notwithstanding their *apparently* innu and kaleidoscopic variations, present, each one, under appropriate barometric a conditions, either present or approaching, such marked and distinctive asp texture as to be readily recognizable on future occasions. For instance, cumu southeast differs entirely from that moving from north, and cumulus from nor of the appearance of that from northwest or west. Cumulus as a complete with no upper cloudiness is of an aspect widely different from that of cumul cirrus or cirro-stratus lies above. The other clouds are susceptible of a similar cation; and, in truth, there are no less than forty different strata which I reco conforming to or heralding corresponding atmospheric conditions.

LACK OF NOMENCLATURE.

To this subdivision there is an evident limit, and a general nomenclatur various sorts would materially condense the cloud-records of the accompanying

PRINCIPAL VARIETIES OF CIRRUS CLOUDS.

The cirrus cloud of Behring Sea is particularly remarkable for three referred to: 1. That constituting the storm-advance. 2. A stratum of in texture combined with cumulus as noted on September 25, 1872. 3. A sort tha bles haze, but of much greater density and obscuring cirrus compounds, so assuming a smoky or red appearance. This latter variety has been frequently o with a remarkable striation, the lines extending precisely into magnetic north.

"CURTAIN" CLOUD.

The cirrus cloud, nearly losing its identity before an *interior eddy*, was obse one occasion, to resemble a cluster of grapes, or rather *curtains* irregularly loo was naturally followed by rain.

PRACTICAL VALUE OF CIRRUS OBSERVATIONS.

I have also referred, in journal, to the apparent practical value of observa the cirrus cloud. This appears extreme when stations sea-ward do not or cann

MANNER OF GENERAL CLASSIFICATION—CIRRUS CLOUD ALWAYS WELL DEFI TEXTURE.

Lest the classification of clouds in the accompanying records appear obscu error, I venture the sacrifice of brevity, and would state that I have conside cirrus cloud as retaining its identity so long as it does not undergo that sing well-known resolution into the aqueous or, so to speak, *melted* texture that chara other clouds. It appears entitled to its identity from its first appearance as transparent stratum up through its various stages of increase, to the time of a massive density which, without the intervention of any compound clouds wha sometimes seen before precipitation. I am aware that in these stages of incre sometimes called a stratus, cirro-stratus, or whatever name seems more eup when none of these latter have appeared. By the way, lack of discrimination the two clouds, stratus and cirro-stratus, is, in itself, manifest error.

CIRRO-STRATUS AND STRATIFIED CIRRUS.

Stratiform cirrus I have *not* designated cirro-stratus, as the cloud, by that disposition of its texture, loses neither identity nor title.

STRATUS.

Stratus has been limited to two varieties: "scud" and the slightly-eleva stratum, as it appears previous to ascent and resolution into cumulus. (Two only in *this* climate.)

RELATIONS OF CUMULUS CURRENT.

For mere convenience in the journal I have referred to the cumulus as a lowe The distance to the nearest upper stratum of cirrus or its compounds is always erable; moreover, in all movements of upper strata the relations of the thereto somewhat resembles those of the "scud" stratus, both being generall on by the surface-wind, invariably when the latter is of any strength.

CIRRUS COMPOUNDS.

It is perhaps unnecessary to assert accuracy in cirro-stratus and cirro-c which necessitate the constant exercise of delicate judgment.

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FOG.

But little fog prevails during the months from October to April, inclusive. This form of cloud will be thoroughly examined with regard to its proportion to other cloudiness during the ensuing summer. A review of the reports proves the *upper* clouds, as well as the lower, to conform *very* frequently to the direction of the surface-current.

PHENOMENAL RECORD.—STORM-CENTERS OF BEHRING SEA AS CIRCULAR RESERVOIRS OF ELECTRIC FORCE.

The phenomenal record embraces observations on certain elements whose relations are still in comparative obscurity. The action of some unknown elements on the very texture of all *clouds*, under whatever phases they may appear, presents itself as a subject for close research and extended observations. Whatever may be the subtle nature of that which we designate electric force, and however this may be overladen with wandering, homeless theories, the most casual observer might, if thereto inclined, recognize the centers of all the southwest Pacific storms as vast *reservoirs of electricity*. These storm-centers, with their piercing hail, peculiar haze, and the wondrous density and grandeur of their cumulo-stratus, offer certain and visible proof of electric action to a high degree, and form a secure base for attack on the primary causes of progressive movement. That a more thorough analysis of the attendant phenomena, assisted, if necessary, by magnetic and other apparatus, would result in more definite conclusions, is beyond a doubt.

AURORA POLARIS.

The atmospheric conditions over Behring Sea, in connection with the infrequency of the phenomenon now referred to, are particularly favorable for tracing auroral relations to storms. Throughout all this area the cloudiness is so frequently broken that but few nights pass without rifts in magnetic north. The phenomenon, whenever it appears, is of very moderate intensity, and only under certain conditions is it visible at all, even through the clearest skies.

AURORAL RELATIONS TO ATMOSPHERIC ACTION.

The absence of aurora during the serene intervals of westerly quadrants of storms, the extension of peculiar *luminous haze* or *electric light* immediately preceding storms, and the diffused glow of the aurora discerned through rifts, or even dense clouds that accompany, are all relations constantly indicated by the journal and records. I doubt if a single storm has passed the island during the winter without the appearance, although perhaps obscured, of auroral light.

INCIDENTAL DEDUCTIONS.

It is, perhaps, rather foreign to logical or inductive conclusions, but a convincing proof, to my own mind, of a close connection between the aurora and atmospheric storm is, that whenever the display appears through a sky free from upper cloud I turn *mechanically* for the appearance of cirrus traces from beyond the Western Sea; and this quasi acknowledgment is more significant from the consciousness of having continued the winter observations without the slightest pre-determination.

ILLUSTRATIONS OF AURORAL RELATIONS.

With references at hand for the entire winter, I cannot but allude to the long period of inaction during the month of March. The heavens were sometimes partially and frequently almost clear, but no trace of aurora was visible, except on March 3; and how significant is the entry, in adjacent columns, that at this time the monotony was interrupted by those disturbers of atmospheric peace—the cirrus and cirro-stratus. After the termination of the long interval referred to the aurora, later in the month, was also visible in evident connection with storms, as entered in phenomenal record.

EVIDENCE OF JOURNAL AND RECORDS CONCERNING AURORA.

The records of the entire season multiply these evidences; but lest future observations should fail to confirm the significance of the past, I have alluded to the aurora in this cursory manner, well aware that if the laws of atmospheric action and auroral phenomena are found to be intimately woven, the field of research, lying beyond this single but important premise, is still unbroken, although perchance quite as attractive as the visible phenomena that point it out.

HAZE—ITS RELATION TO STORM-CENTER.

Concerning the relations of haze, results from the storm-center induce certain immature suspicions that would scarcely coincide with any one of many accepted conclusions. I have entered observations thereon in phenomenal record, and, affixing a scale

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of density, find that this element attains a *great* density only in or near a s
tral area. No evident relations between this haze of the center and the s
yet resulted—in fact, the latter phenomenon does not appear in a storm's f
no less evident that there *are* relations, and those of an interesting nature.

GENERAL ELECTRIC PHENOMENA—OCEANIC AREA OF NON-DISPLA

This climatic area compares with all the continental western coast in fre
thunder and lightning, of which there is no instance thus far recorded in re
area of the ocean and Behring Sea, in which these electric phenomena ar
rare, has evidently no boundary on the north, extends as far as Petropaulo
west, and far into the Pacific Ocean on the south.

GENERAL PHENOMENA OF RECORDS.

Many other phenomena worthy of notice, however, have occurred during
As an instance, a remarkable alternation between hail and snow, succee
evening by aurora in connection therewith, is entered in journal of Octob
No one can turn the pages of such a continuous record without perception
portionate results; but, as *meteorological* investigation particularly demand
intended, I would repeat, for reference alone.

GENERAL REFERENCE TO RELATIONS OF OCEANIC AND CONTINENTAL S

The relations which the great storms prevailing over Behring Sea bear t
vancing over the continental interior are, by reason of the interposition of
chains, comparatively obscure. Those moving from a southwesterly direct
tate heavily on the mainland coast, but whether their barometric wave
the interior of British America, and thereby modify or act on those of
States, is a question that, even were I already versed in the dynamic
storms, lies beyond the authority of this report to solve. I fear that simp
to these relations is premature, if not, forsooth, unwarrantable, assumptio
theless, is it not possible that any one of the violent storms of that class
northwest may, although yielding its moisture to the mountains, successful
its remaining forces over beyond those elevated chains, and then, forming
the eastern plateaus, and gradually collecting new conditions of cloud and
move forward to the Atlantic coast, retaining, as it were, the barometric lif
rior causes of progression that originally forced the storm over the waters o
Pacific?

Labyrinthian as these currents and waves of atmospheric action now
secrets of their relations cannot be quite invulnerable. Analogous currents
lantic Ocean and the dependence of European climate thereon open a route
which will doubtless penetrate any obscurity thrown over it by the confi
our mainland coast.

The climate of St. Paul Island closely resembles that of the ocean distric
Iceland is representative; and the day is evidently approaching when th
growth of Pacific commerce and navigation will so encourage practical m
that a satisfactory reply can be given to the natural inquiry—Is the area n
Atlantic Isles a key to any class of American storms?

I am, sir, very respectfully, your obedient servant,

CHAS. PATTISO

The CHIEF SIGNAL-OFFICER, U. S. A.,
Washington, D. C.

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Meteorological record for the five days ending June 5, 1872.

STATION: UNALASKA, ALASKA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Saturday, June 1	1 23 a. m.	29.09	56	44	29.92	43	41	83	0	0	0	....	Stratus	4-4	0	0	0	.....	.....	....	....	....	
	7 0 a. m.	29.97	54	43	29.91	43	42	91	0	0	0	....	Stratus	4-4	0	0	E.	.....	.....	....	....	....	
	10 23 a. m.	29.94	51	46	29.88	46	43	76	E.	7	.24	51	Stratus	3-4	Cirrus	1-4	0	.....	.....	....	....	....	
	2 0 p. m.	29.91	51	48	29.85	47	44	77	E.	11	.60	....	0	0	Cumulus	4-4	E.	.....	.....	....	....	....	
	5 23 p. m.	29.90	67	44	29.80	44	42	83	E.	3	.04	....	0	0	Cumulus	4-4	E.	4.10 p. m.	.....	.01	....	....	
	9 0 p. m.	29.78	53	41	29.72	41	39	82	E.	4	.08	....	Stratus	4 4	0	0	0	.....	5.50 p. m.	.01	48	41	
Sunday, June 2	1 23 a. m.	29.76	53	42	29.70	42	40	82	0	0	0	....	Fog	4-4	.....	.....	.....	.....	.....	....	....	....	
	7 0 a. m.	29.73	54	44	29.67	44	43	91	E.	1	.01	....	Stratus	4-4	.....	.....	.....	.....	.....	....	....	....	
	10 23 a. m.	29.76	67	46	29.66	46	44	84	S. E.	1	.01	72	Fog	4-4	.....	.....	.....	.....	.....	....	....	....	
	2 0 p. m.	29.70	57	51	29.63	51	47	72	S. E.	4	.08	....	0	0	Cumulus	4-4	S. E.	.....	.....	....	....	....	
	5 23 p. m.	29.63	55	46	29.56	46	43	76	S. E.	6	.18	....	0	0	Cumulus	4-4	S. E.	.....	.....	....	....	....	
	9 0 p. m.	29.64	66	42	29.55	42	41	91	S. E.	4	.08	....	Stratus	4-4	.....	.....	.....	.....	.....	....	52	41	
Monday, June 3	1 23 a. m.	29.51	55	43	29.44	43	41	83	E.	4	.08	....	Stratus	4-4	.....	.....	.....	6.10 p. m.	7.15 p. m.	.02	....	....	
	7 0 a. m.	29.43	53	43	29.37	43	41	83	E.	3	.04	149	Stratus	4-4	.....	.....	.....	.....	.....	....	....	....	
	10 23 a. m.	29.41	52	45	29.35	45	42	76	E.	7	.24	....	Stratus	4-4	.....	.....	.....	.....	.....	....	....	....	
	2 0 p. m.	29.46	62	44	29.38	44	42	83	E.	5	.12	....	Stratus	4-4	.....	.....	.....	.....	.....	....	....	....	
	5 23 p. m.	29.51	71	45	29.40	44	42	83	N. E.	4	.08	....	Stratus	2-4	Cirrus	2-4	N. W.	.....	.....	....	....	....	
	9 0 p. m.	29.54	66	42	29.45	42	40	82	S. E.	2	.02	....	Stratus	2-4	Cirrus	2-4	N. W.	.....	.....	....	46	41	
Tuesday, June 4	1 23 a. m.	29.60	56	42	29.53	42	40	82	0	0	0	....	Stratus	1-2	Cirrus	1-2	0	.....	.....	....	....	....	
	7 0 a. m.	29.63	54	45	29.57	45	42	76	0	0	0	89	Stratus	1-2	Cirrus	1-2	0	.....	.....	....	....	....	
	10 23 a. m.	29.65	60	47	29.57	46	44	84	N. E.	3	.04	....	Stratus	1-2	Cirrus	1-2	0	.....	.....	....	....	....	
	2 0 p. m.	29.66	57	49	29.59	49	46	78	S. E.	5	.12	....	0	0	Cumulus	4-4	S. E.	.....	.....	....	....	....	
	5 23 p. m	29.65	55	45	29.58	45	43	84	N. E.	8	.32	....	Stratus	1 2	Cirrus	1 2	W.	.....	.....	....	....	....	
	9 0 p. m.	29.71	67	44	29.61	44	41	75	W.	1	.01	....	Stratus	1-2	Cirrus	1-2	0	.....	.....	....	51	42	
Wednesday, June 5.	1 23 a. m.	29.69	59	43	29.60	43	41	83	0	0	0	....	Stratus	1-4	Cirrus	1-4	E.	.....	.....	....	....	....	
	7 0 a. m.	29.69	55	48	29.62	47	44	77	E.	1	.01	99	Stratus	1-2	Cirrus	1-2	0	.....	.....	....	....	....	
	10 23 a. m.	29.73	67	52	29.63	52	48	72	N. W.	1	.01	....	Cumulus	1-2	Cirrus	1-2	0	8.30 a. m.	8.40 a. m.	.00	....	....	
	2 0 p. m.	29.68	57	46	29.61	45	44	92	N. E.	9	.40	....	Stratus	4-4	.....	.....	.....	.....	.....	....	....	....	
	5 23 p. m.	29.67	71	45	29.56	45	44	92	N.	5	.12	....	Nimbus	4-4	.....	.....	.....	3.35 p. m.	.....	.05	....	....	
	9 0 p. m.	29.68	66	43	29.59	43	42	91	N. E.	5	.12	....	Stratus	4-4	.....	.....	.....	.....	.....	....	54	42	

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Meteorological record for the five days ending June 10, 1872—Continued.

STATION: UNALASKA, ALASKA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS Kind.	LOWER CLOUDS Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Thursday, June 6	1 23 a. m.	29.69	57	43	29.62	43	42	91	N.	7	.24	....	Stratus	4-4	.....	....	.....	.....	.....	.14	....	....	
	7 0 a. m.	29.69	53	43	29.63	43	42	91	N.	12	.72	139	Stratus	4-4	.....	....	.....	.....	.....	.....	....	....	
	10 23 a. m.	29.74	67	45	29.64	45	43	84	N.	10	.50	....	Stratus	4-4	.....	....	.....	.....	.....	.06	....	....	
	2 0 p. m.	29.78	66	46	29.68	46	44	84	N. W.	9	.40	....	Stratus	4-4	.....	....	.....	.....	.....	.....	....	....	
	5 23 p. m.	29.83	67	44	29.73	44	42	83	N.	9	.40	....	0	0	Cumulus	4-4	N.	.....	2.20 p. m.	.17	....	....	
	9 0 p. m.	29.89	65	43	29.80	43	42	91	N.	11	.60	....	Stratus	4-4	.....	....	.....	.....	.....	.....	46	42	
Friday, June 7	1 23 a. m.	29.98	56	42	29.91	42	40	82	N. W.	11	.60	....	Stratus	4-4	.....	....	N. W.	8.30 p. m.	.....	.04	....	....	
	7 0 a. m.	30.06	54	43	30.00	43	41	83	N. W.	8	.32	254	Stratus	4-4	.....	....	.....	.....	.....	.....	....	....	
	10 23 a. m.	30.09	57	46	30.02	46	44	84	N. W.	11	.60	....	Stratus	3-4	0	0	0	.....	.....	.05	....	....	
	2 0 p. m.	30.17	65	44	30.08	44	42	83	N. W.	13	.84	....	Stratus	4-4	.....	....	.....	.....	.....	.....	....	....	
	5 23 p. m.	30.24	71	41	30 13	41	39	82	N.	11	.60	....	0	0	Cumulus	4-4	N.	11.10 a. m.	.....	.00	....	....	
	9 0 p. m.	30.30	68	39	30.20	39	37	81	N. W.	9	.40	....	Stratus	4-4	.....	....	.....	.....	.....	.....	47	39	
Saturday, June 8	1 23 a. m.	30.36	60	38	30.28	38	36	81	N. W.	6	.18	....	Stratus	4-4	.....	....	.....	D'g night.	D'g night.	.00	....	....	Light snow.
	7 0 a. m.	30.41	53	41	30.35	41	37	65	N. W.	1	.01	212	0	0	Cumulus	4-4	N. W	.....	.....	.....	....	....	
	10 23 a. m.	30.46	69	45	30.35	45	41	68	N. W.	3	.04	....	0	0	Cumulus	3-4	N. W.	.....	.....	.....	....	....	
	2 0 p. m.	30.49	64	43	30.40	43	39	66	N. E.	12	.72	....	0	0	Cumulus	1-4	S. W.	.....	.....	.....	....	....	
	5 23 p. m.	30.50	65	42	30.40	42	38	66	N. E.	7	.24	....	Stratus	1-2	Cirrus	1-4	S. W.	.....	.....	.....	....	....	
	9 0 p. m.	30.53	68	40	30.43	40	37	73	N. E.	5	.12	....	Stratus	4-4	.....	....	.....	.....	.....	.....	46	37	
Sunday, June 9	1 23 a. m.	30.51	59	39	30.43	39	36	72	E.	3	.04	....	Stratus	4-4	.....	....	.....	.....	.....	.....	....	....	
	7 0 a. m.	30.50	54	43	30.43	43	40	75	S.	5	.12	124	0	0	Cumulus	3-4	S.	.....	.....	.....	....	....	
	10 23 a. m.	23.53	65	50	30.43	50	46	71	S.	5	.12	....	0	0	Cumulus	4-4	S.	.....	.....	.....	....	....	
	2 0 p. m.	30.48	58	43	30.40	53	46	54	S.	5	.12	....	0	0	Cumulus	4-4	S.	.....	.....	.....	....	....	
	5 23 p. m.	30.48	63	48	30.39	47	42	62	S.	4	.08	....	Stratus	4-4	.....	....	S.	.....	.....	.....	....	....	
	9 0 p. m.	30.48	63	42	30.39	42	39	74	S.	3	.04	....	Stratus	1-2	Cirrus	1-2	W.	.....	.....	.....	55	39	
Monday, June 10	1 23 a. m.	30.44	58	41	30.36	41	38	73	S.	2	.02	....	Stratus	1-2	Cirrus	1-2	0	.....	.....	.....	....	....	
	7 0 a. m.	30.40	54	45	30.33	45	42	76	S. W.	2	.02	92	Stratus	1-2	Cirrus	1-2	W.	.....	.....	.....	....	....	
	10 23 a. m.	30.39	68	51	30.29	51	46	65	W.	11	.60	....	Stratus	1-2	Cumulus	1-2	W.	.....	.....	.....	....	....	
	2 0 p. m.	30.37	66	47	30.27	46	43	76	N. E.	7	.24	....	Stratus	1-2	Cumulus	1-2	0	.....	.....	.....	....	....	
	5 23 p. m.	30.32	56	45	30.25	45	42	76	N. E.	3	.04	....	Stratus	1-4	Cumulus	1-2	N. E.	12.10 p. m.	12.20 p. m.	.00	....	....	
	9 0 p. m.	30.32	64	42	30.23	42	40	82	N.	1	.01	....	0	0	Cumulus	4-4	N.	.....	.....	.....	52	41	

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Meteorological record for the five days ending June 15, 1872.

STATION: UNALASKA, ALASKA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Tuesday, June 11...	1 23 a. m.	30.30	56	41	30.23	41	38	73	N. W.	2	.02	....	0	0	Cumulus	4-4	W.	.....	.....	....	....	....	
	7 0 a. m.	30.28	55	43	30.21	43	40	75	S. W.	4	.08	82	0	0	Cumulus	4-4	S. W.	.....	.....	....	....	....	
	10 23 a. m.	30.34	72	51	30.23	51	46	65	W.	7	.24	....	0	0	Cumulus	3-4	W.	.....	.....	....	....	....	
	2 0 p. m.	30.30	64	51	30.21	50	43	51	W.	8	.32	....	0	0	Cumulus	1-4	W.	.....	.....	....	....	....	
	5 23 p. m.	30.32	67	47	30.22	47	41	55	W.	8	.32	....	0	0	Cumulus	1-2	W.	.....	.....	....	....	....	
	9 0 p. m.	30.32	58	41	30.24	41	37	65	S. W.	5	.12	....	0	0	Cumulus	1-4	S. W.	.....	.....	....	52	41	
Wednesday, June 12	1 23 a. m.	30.31	57	42	30.24	42	39	74	S.	4	.08	...	Stratus	4-4	.....	....	.....	.....	.....	....	....	....	
	7 0 a. m.	30.27	54	45	30.20	45	41	68	S.	8	.32	128	Stratus	1-2	Cirrus...	1-4	W.	.....	.....	....	....	....	
	10 23 a. m.	30.26	65	52	30.16	52	48	72	S.	14	.98	....	Stratus	1-2	Cirrus...	1-4	W.	.....	.....	....	....	....	
	2 0 p. m.	30.19	64	48	30.10	48	45	77	S. E.	15	1.12	....	Stratus	1-2	Cirrus...	1-2	S. W.	.....	.....	....	....	....	
	5 23 p. m.	30.11	67	44	30.01	44	42	83	S. E.	8	.32	....	Stratus	4-4	.....	....	.....	1.38 p. m.	.....	.07	....	....	
	9 0 p. m.	30.00	67	44	29.90	44	42	83	S. E.	13	.84	...	Nimbus	4-4	.....	....	.....	.....	.....	....	53	40	
Thursday, June 13..	1 23 a. m.	29.77	59	43	29.69	43	41	83	S.	8	.32	....	Stratus	4-4	.....	....	.....	.....	.....	.32	....	....	
	7 0 a. m.	29.50	55	48	29.43	48	46	85	S.	9	.40	270	Stratus	1-2	Cirrus...	1-2	S.	.....	.....	....	....	....	
	10 23 a. m.	29.48	68	55	29.38	55	51	74	S.	21	2.20	....	Stratus	1-4	Cirrus ..	1-4	S.	.....	8.23 a. m.	.11	....	....	
	2 0 p. m.	29.49	61	57	29.41	57	51	63	S. W.	8	.32	....	0	0	Cumulus	1-2	S. W.	.....	.....	....	....	....	
	5 23 p. m.	29.60	57	48	29.53	48	44	70	W.	14	.98	....	0	0	Cumulus	4-4	W.	.....	.....	....	....	....	
	9 0 p. m.	29.73	56	44	29.66	44	41	75	W.	12	.72	....	Stratus	1-2	Cumulus	1-2	W.	.....	.....	....	57	43	
Friday, June 14....	1 23 a. m.	29.89	55	43	29.82	43	40	75	W.	9	.40	....	0	0	Cumulus	3-4	W.	.....	.....	....	....	....	
	7 0 a. m.	29.97	69	46	29.87	46	44	84	W.	14	.98	296	Stratus	1-2	Cumulus	1-2	W.	.....	.....	....	....	....	
	10 23 a. m.	29.93	68	44	29.83	44	40	67	W.	19	1.80	...	Nimbus	4-4	.....	....	.....	8.16 a. m.	.....	.04	....	....	
	2 0 p. m.	30.03	57	46	29.96	46	42	69	W.	15	1.12	....	Stratus	1-2	Cumulus	1-2	W.	.....	.....	....	....	....	
	5 23 p. m.	30.08	66	44	29.98	44	42	83	W.	16	1.28	....	Stratus	1-2	Cumulus	1-2	W.	.....	.....	.02	....	....	
	9 0 p. m.	30.16	68	42	30.06	42	40	82	W.	12	.72	....	Stratus	1-4	Cumulus	3-4	W.	.....	.....	....	48	42	
Saturday, June 15..	1 23 a. m.	30.17	53	43	30.11	42	40	82	W.	7	.24	....	0	0	Cumulus	4-4	W.	.....	5.40 p. m.	.01	....	....	
	7 0 a. m.	30.17	53	46	30.11	46	44	84	W.	3	.04	284	0	0	Cumulus	4 4	W.	.....	.....	....	....	....	
	10 23 a. m.	30.13	51	48	30.07	48	44	70	N. E.	5	.12	....	0	0	Cumulus	3-4	S.	.....	.....	....	....	....	
	2 0 p. m.	30.07	54	56	30.01	55	48	56	S. E.	6	.18	....	0	0	0	0	0	.....	.....	....	....	....	
	5 23 p. m.	30.01	51	46	29.95	46	44	84	N. E.	2	.02	....	0	0	Cumulus	1-4	0	.....	.....	....	....	....	
	9 0 p. m.	30.02	69	44	29.92	44	41	75	S.	3	.04	....	0	0	Cumulus	4 4	S.	.....	.....	....	56	42	

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Meteorological record for the five days ending June 20, 1872.

STATION: UNALASKA, ALASKA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Sunday, June 16....	1 23 a. m.	29.85	54	44	29.79	44	42	83	W.	3	.04	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	.....	
	7 0 a. m.	29.93	70	46	29.80	46	42	69	W.	3	.04	125	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.93	70	46	29.80	46	42	69	W.	3	.04	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	.....	
	2 0 p. m.	30.00	61	47	29.92	47	44	77	N. W.	9	.40	....	Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	30.09	64	44	30.00	44	40	67	N. W.	11	.60	....	Nimbus	4-4	.....	.....	.....	1.40 p. m.	.....	.01	.....	.....	
	9 0 p. m.	30.17	69	41	30.07	41	39	82	N. W.	6	.18	....	0	0	Cumulus	3-4	N. W.	.....	8.20 p. m.	.00	49	41	
Monday, June 17...	1 23 a. m.	30.28	52	39	30.22	39	37	81	N. W.	9	.40	....	0	0	Cumulus	3-4	N. W.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.32	51	46	30.26	46	43	76	N. W.	6	.18	205	0	0	Cirrus...	1-4	W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.39	51	51	30.33	51	45	59	W.	5	.12	....	Stratus..	1-4	Cirrus...	1-4	N. W.	.....	.....	.....	.....	.....	
	2 0 p. m.	30.42	57	49	30.35	49	41	43	W.	18	1.62	....	Stratus..	1-4	Cirrus...	1-4	N. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.40	62	46	30.31	46	40	54	W.	12	.72	....	Stratus..	1-4	Cirrus...	1-4	N. W.	.....	.....	.....	.....	.....	
	9 0 p. m.	30.41	61	43	30.33	43	38	58	W.	16	1.28	....	Stratus..	1-4	Cirrus...	1-4	N. W.	.....	.....	.....	52	39	
Tuesday, June 18 ..	1 23 a. m.	30.41	57	43	30.34	42	37	57	S. W.	13	.84	....	Stratus..	1-4	Cirrus...	1-2	W.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.41	53	44	30.35	44	40	67	W.	16	1.28	259	Stratus..	1-2	Cirrus...	1-2	W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.44	72	47	30.33	47	42	62	S. W.	12	.72	....	Stratus..	1-2	Cirrus...	1-2	W.	.....	.....	.....	.....	.....	
	2 0 p. m.	30.39	70	46	30.28	46	41	61	S. W.	13	.84	....	0	0	Cirrus...	3-4	W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.35	66	47	30.25	46	41	61	S. W.	11	.60	....	Stratus..	1-4	Cirrus...	1-4	W.	2.10 p. m.	2.15 p. m.	.00	.....	.....	
	9 0 p. m.	30.31	59	43	30.23	43	38	58	S. W.	16	1.28	....	Stratus..	1-2	Cirrus...	1-2	W.	.....	.....	.....	47	41	
Wednesday, June 19	1 23 a. m.	30.23	52	41	30.17	41	37	65	S. W.	12	.72	....	Stratus..	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	30.25	50	44	30.20	44	40	67	S. W.	13	.84	274	Stratus..	1-2	Cirrus...	1-4	W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.28	53	47	30.22	47	44	77	S. W.	10	1.60	....	Stratus..	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	2 0 p. m.	30.32	52	51	30.26	51	48	79	N. W.	1	.01	....	Stratus..	3-4	Cirrus...	1-4	W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.29	58	51	30.21	51	45	59	S. W.	12	.72	....	Stratus..	3-4	Cirrus...	1-4	W.	.....	.....	.....	.....	.....	
	9 0 p. m.	30.32	68	51	30.22	54	46	65	W.	10	.50	....	Stratus..	1-2	Cirrus...	1-2	N. W.	.....	.....	.....	52	40	
Thursday, June 20.	1 23 a. m.	30.28	57	47	30.21	47	43	69	S. W.	12	.72	....	Stratus..	1-2	Cirrus...	1-2	N. W.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.21	52	48	30.15	48	45	77	S. W.	13	.84	316	Stratus..	1-2	Cirrus...	1-2	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.19	54	53	30.13	53	46	54	S. W.	14	.98	....	Stratus..	1-2	Cirrus...	1-2	W.	.....	.....	.....	.....	.....	
	2 0 p. m.	30.24	69	53	30.14	53	47	60	S. W.	15	1.12	....	Stratus..	1-2	Cirrus...	1-2	W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.22	66	51	30.12	51	45	59	S. W.	12	.72	....	Stratus..	3-4	Cirrus...	1-4	W.	.....	.....	.....	.....	.....	
	9 0 p. m.	30.24	65	49	30.15	49	44	63	S. W.	8	.32	....	Stratus..	1-4	Cumulus	3-4	W.	.....	.....	.....	55	47	

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Meteorological record for the five days ending June 25, 1872.

STATION: UNALASKA, ALASKA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Friday, June 21	1 23 a. m.	30. 25	59	45	30. 17	45	42	76	S.W.	9	.40	....	0	0	Cirrus ..	1-2	W.	.....	.....	.....	.....	.....	
	7 0 a. m.	30. 24	56	48	30. 17	48	44	70	S.W.	12	.72	296	0	0	Cirrus ..	1-4	W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30. 27	56	49	30. 20	49	46	78	S.W.	13	.84	....	Stratus	1-2	Cirrus ..	1-2	W.	.....	.....	.....	.....	.....	
	2 0 p. m.	30. 31	62	56	30. 22	56	51	68	S.W.	16	1. 28	....	Stratus	1-2	Cirrus ..	1-4	W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30. 34	65	54	30. 24	54	49	67	W.	14	.98	....	Stratus	1-2	Cirrus ..	1-2	W.	.....	.....	.....	.....	.....	
	9 0 p. m.	30. 37	66	51	30. 27	51	47	73	W.	18	1. 62	....	Stratus	1-2	Cirrus ..	1-4	W.	8.35 p. m.	8.55 p. m.	.00	.....	.....	
Saturday, June 22..	1 23 a. m.	30. 41	59	48	30. 33	48	41	70	W.	14	.98	....	0	0	Cumulus	1-2	W.	.....	.....	.....	58	45	
	7 0 a. m.	30. 45	58	50	30. 37	50	47	78	W.	12	.72	309	Stratus	1-4	Cirrus ..	3-4	W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30. 47	57	57	30. 40	57	53	75	W.	13	.84	....	Stratus	1-4	Cirrus ..	1-4	W.	.....	.....	.....	.....	.....	
	2 0 p. m.	30. 48	58	54	30. 40	53	49	73	W.	11	.60	....	0	0	Cirrus ..	1-2	W.	.....	.....	.....	.....	.....	
	5 23 p. m	30. 50	58	53	30. 42	53	48	66	W.	9	.40	....	0	0	Cirrus ..	4-4	W.	.....	.....	.....	.....	.....	
	9 0 p. m.	30. 53	56	49	30. 46	49	45	71	W.	8	.32	....	0	0	Cirrus ..	4-4	0	.....	.....	.....	.....	.....	
Sunday, June 23 ...	1 23 a. m.	30. 53	56	46	30. 46	46	43	76	N. W.	3	.04	....	0	0	.....	4-4	.....	.....	.....	.....	58	48	
	7 0 a. m.	30. 53	57	45	30. 46	45	44	92	N. E.	1	.01	179	Stratus	1-2	Cirrus ..	1-2	W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30. 52	70	51	30. 41	51	48	79	N. E.	3	.04	....	Stratus	1-2	Cirrus ..	1-2	W.	.....	.....	.....	.....	.....	
	2 0 p. m.	30. 51	71	49	30. 40	49	47	85	N. E.	4	.08	....	Stratus	3-4	Cirrus ..	1-4	W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30. 49	63	51	30. 40	51	46	65	N. E.	1	.01	....	Stratus	1-4	Cirrus ..	3-4	W.	.....	.....	.....	.....	.....	
	9 0 p. m.	30. 44	72	49	30. 33	49	47	85	0	0	0	....	Nimbus	4-4	.....	.....	.....	6.10 p. m.	.....	.....	.....	.....	
Monday, June 24...	1 23 a. m.	30. 35	61	48	30. 27	48	45	77	0	0	0	....	0	0	.....	4-4	.....	.....	D'g night	.05	51	44	
	7 0 a. m.	30. 22	59	53	30. 14	53	49	73	W.	8	.32	101	Stratus	1-4	Cumulus	1-2	W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30. 22	59	54	30. 14	54	49	67	W.	13	.84	....	Stratus	3-4	Cirrus ..	1-4	W.	.....	.....	.....	.....	.....	
	2 0 p. m.	30. 24	68	58	30. 14	57	51	63	W.	13	.84	....	0	0	Cumulus	1 2	W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30. 24	66	53	30. 14	53	49	73	W.	12	.72	....	Stratus	1-2	Cirrus ..	1-4	W.	.....	.....	.....	.....	.....	
	9 0 p. m.	30. 23	68	50	30. 13	50	46	78	W.	12	.72	....	Stratus	1-4	Cumulus	1-4	W.	.....	.....	.....	.....	.....	
Tuesday, June 25 ..	1 23 a. m.	30. 19	58	48	30. 12	48	44	70	W.	11	.60	....	Stratus	1-4	Cirrus ..	1-4	W.	.....	.....	.....	59	48	
	7 0 a. m.	30. 14	56	48	30. 07	48	45	77	W.	13	.84	310	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	30. 15	55	52	30. 08	52	48	72	W.	13	.84	....	Stratus	3-4	Cirrus ..	1-4	W.	9.20 a. m.	.....	.....	.....	.....	
	2 0 p. m.	30. 17	67	47	30. 07	47	45	84	W.	9	.40	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	30. 12	57	49	30. 03	49	47	85	W.	8	.32	....	Stratus	4-4	.....	.....	.....	.....	.....	.03	.....	.....	
	9 0 p. m.	30. 11	66	47	30. 01	47	46	92	W.	11	.60	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	53	47	

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Meteorological record for the five days ending June 30, 1872.

STATION: UNALASKA, ALASKA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Wednesday, June 26	1 23 a. m.	30.09	59	48	30.01	48	46	85	S. W.	5	.12	...	Stratus..	1-2	Cumulus	1-2	S. W.	.....	D'g night	.06	....	....	
	7 0 a. m.	29.91	57	53	29.84	53	51	86	S. W.	9	.40	230	Stratus..	3-4	Cirrus ..	1-4	W.	.....	.....	....	....	....	
	10 23 a. m.	29.91	57	56	29.84	56	53	80	W.	11	.60	....	Stratus..	1-2	Cirrus ..	1-2	W.	.....	.....	....	....	....	
	2 0 p. m.	29.88	57	57	29.81	57	53	75	W.	11	.60	....	Stratus..	3-4	Cirrus ..	1-4	W.	.....	.....	....	....	....	
	5 23 p. m.	29.89	69	59	29.79	59	55	76	W.	6	.18	....	Stratus..	1-2	Cirrus ..	1-2	W.	.....	.....	....	....	....	
	9 0 p. m	29.82	62	55	29.73	55	52	80	S. W.	10	.50	....	Stratus..	1-2	Cirrus ..	1-2	W.	.....	.....	....	59	47	
Thursday, June 27	1 23 a. m.	29.75	60	53	29.67	53	51	86	S. W.	4	.08	....	Stratus..	4-4	.....	....	.....	.....	.....	....	....	....	
	7 0 a. m.	29.65	59	55	29.57	55	52	80	S. W.	6	.18	159	Stratus..	4-4	.....	....	.....	.....	.....	....	....	....	
	10 23 a. m.	29.62	57	59	29.55	59	56	81	S. W.	2	.02	....	0	0	Cumulus	1-4	S. W.	.....	.....	....	....	....	
	2 0 p. m.	29.62	56	52	29.55	52	49	79	S. W.	6	.18	....	Stratus..	3-4	Cirrus ..	1-4	W.	.....	.....	....	....	....	
	5 23 p. m.	29.61	57	52	29.54	52	48	72	S. W.	5	.12	....	Stratus..	3-4	Cirrus ..	1-4	W.	.....	.....	....	....	....	
	9 0 p. m.	29.68	57	52	29.61	52	48	72	S. W.	6	.18	....	0	0	Cumulus	3-4	W.	.....	.....	....	61	52	
Friday, June 28	1 23 a. m.	29.66	56	47	29.59	47	44	77	W.	5	.32	....	0	0	Cumulus	3-4	W.	.....	.....	....	....	....	
	7 0 a. m.	29.65	55	49	29.58	49	45	71	W.	10	.50	246	0	0	Cumulus	3-4	W.	.....	.....	....	....	....	
	10 23 a. m.	29.68	54	50	29.62	50	46	71	W.	11	.60	....	0	0	Cumulus	1-2	W.	.....	.....	....	....	....	
	2 0 p. m.	29.71	54	51	29.65	51	46	65	W.	12	.72	....	Stratus..	1-4	Cumulus	1-4	W.	.....	.....	....	....	....	
	5 23 p. m.	29.78	55	47	29.71	47	43	69	W.	11	.60	....	0	0	0	0	0	.....	.....	....	....	....	
	9 0 p. m.	29.82	72	43	29.70	43	40	75	W.	9	.40	....	Stratus..	1-4	0	0	0	.....	.....	....	52	43	
Saturday, June 29	1 23 a. m.	29.80	58	42	29.73	42	39	74	W.	15	1.12	....	Stratus..	4-4	.....	....	.....	D'g night	.....	.01	....	....	
	7 0 a. m	29.73	53	44	29.67	44	41	75	W.	7	.24	277	Stratus..	4-4	.....	....	.....	.....	.....	....	....	....	
	10 23 a. m.	29.74	62	49	29.66	49	45	71	W.	14	.98	....	Nimbus ..	4-4	.....	....	.....	.....	.....	....	....	....	
	2 0 p. m.	29.75	69	48	29.65	48	44	70	W.	12	.72	....	Nimbus ..	4-4	.....	....	.....	.....	.....	....	....	....	
	5 23 p. m.	29.73	57	48	29.66	48	44	70	W.	21	2.20	....	Stratus..	4-4	.....	....	.....	.....	.....	.01	....	....	
	9 0 p. m.	29.77	55	44	29.70	44	43	91	W.	23	2.64	....	Nimbus ..	4-4	.....	....	.....	.....	.....	....	50	42	
Sunday, June 30	1 23 a. m.	29.85	56	43	29.78	43	41	83	W.	13	.84	....	Nimbus ..	4-4	.....	....	.....	.....	.....	.09	....	....	
	7 0 a. m.	29.92	52	44	29.86	44	41	75	W.	15	1.12	371	Stratus..	4-4	.....	....	.....	.....	.....	....	....	....	
	10 23 a. m.	29.94	61	48	29.86	48	45	77	W.	14	.98	....	Stratus..	4-4	.....	....	.....	.....	.....	.07	....	....	
	2 0 p. m.	29.98	64	49	29.89	49	46	78	N. W.	16	1.28	....	Stratus..	4-4	.....	....	.....	.....	.....	....	....	....	
	5 23 p. m.	30.04	68	47	29.94	47	44	77	N. W.	18	1.62	....	Stratus	4-4	.....	....	.....	.....	.....	.08	....	....	
	9 0 p. m.	30.09	62	45	30.00	45	43	84	N. W.	13	.84	....	Stratus..	4-4	.....	....	.....	.....	4 50 p. m	....	B'k	B'k	

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Meteorological record for the five days ending July 5, 1872.

STATION: UNALASKA, ALASKA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Correction.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction.	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Monday, July 1	1 23 a. m.	30.12	55	44	30.03	44	42	83	N. W.	7	.24	...	Stratus	4-4	.....	.....	N. W.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.13	50	45	30.05	45	43	84	N. W.	6	.18	324	Stratus	1-4	Cumulus	1-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.14	49	48	30.09	48	45	77	N. W.	6	.18	...	Stratus	1-4	Cumulus	1-4	N. W.	.....	.....	.....	.....	.....	
	2 0 p. m.	30.19	65	48	30.10	48	45	77	N. W.	12	.72	...	0	0	Cumulus	3-4	N. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.22	62	46	30.13	46	43	76	N. W.	11	.60	...	0	0	Cumulus	3-4	N. W.	.....	.....	.....	50	42	
	9 0 p. m.	30.20	46	43	30.15	43	41	83	N. W.	7	.24	...	0	0	Cumulus	3-4	N. W.	.....	.....	.....	.....	.....	
Tuesday, July 2	1 23 a. m.	30.21	50	42	30.16	42	40	82	N.	3	.04	170	Stratus	2-4	Cirrus	1-4	N. W.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.24	52	45	30.18	45	43	84	N. E.	1	.01	...	Stratus	3-4	Cirrus	1-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.22	49	50	30.17	50	47	78	N. E.	6	.18	...	0	0	Cirrus	1-4	N. W.	.....	.....	.....	.....	.....	
	2 0 p. m.	30.19	49	45	30.14	44	42	92	N. E.	9	.40	...	Fog	1-4	Cirrus	1-4	N. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.13	48	45	30.08	44	43	91	N. E.	5	.12	...	Stratus	1-4	Cirrus	4-4	N. W.	.....	.....	.....	49	43	
	9 0 p. m.	30.05	48	47	30.10	47	43	80	S. E.	1	.01	...	0	0	Cirrus	4-4	.....	.....	.....	.....	.....	.....	
Wednesday, July 3	1 23 a. m.	29.96	46	46	29.93	46	43	76	S. E.	8	.32	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	29.84	51	45	29.78	45	43	84	S. E.	10	.50	177	Stratus	3-4	Cirrus	1-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.83	60	49	29.75	49	45	71	S. E.	12	.72	...	Stratus	2-4	Cirrus	2-4	N. W.	.....	.....	.....	.....	.....	
	2 0 p. m.	29.76	52	50	29.70	50	46	71	S. E.	14	.98	...	Stratus	2-4	Cirrus	3-4	N. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.68	52	48	29.64	48	45	77	S. E.	12	.72	...	Stratus	1-4	Cirrus	3-4	N. W.	.....	.....	.....	.....	.....	
	9 0 p. m.	29.62	52	44	29.62	44	42	83	S. E.	7	.24	...	Stratus	3-4	Cirrus	1-4	N. W.	.....	.....	.....	50	42	
Thursday, July 4	1 23 a. m.	29.53	51	43	29.53	43	41	84	N. E.	1	.01	...	0	0	Cirrus	2-4	N. W.	.....	.....	.....	.....	.....	
	7 0 a. m.	29.50	51	46	29.54	46	44	77	N. E.	1	.01	195	Hazy	...	Cirrus	2-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.51	54	47	29.51	47	44	77	N. E.	9	.40	...	Fog	1-4	Cirrus	1-4	W.	.....	.....	.....	.....	.....	
	2 0 p. m.	29.58	52	49	29.52	49	46	78	N. E.	8	.32	...	0	0	Cirrus	1-4	W.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.57	51	51	29.53	51	49	85	N. E.	6	.18	...	Stratus	1-4	Cirrus	1-4	W.	.....	.....	.....	52	43	
	9 0 p. m.	29.58	51	47	29.53	47	44	77	E.	1	.01	...	Fog	1-4	Cirrus	1-4	W.	.....	.....	.....	.....	.....	
Friday, July 5	1 23 a. m.	29.54	50	44	29.54	44	43	91	0	0	0	...	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	29.59	51	49	29.54	49	46	78	S. E.	2	.02	144	Stratus	1-4	Cirrus	1-4	W.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.61	54	49	29.54	49	46	71	S. E.	1	.01	...	0	0	Cirrus	1-4	W.	.....	.....	.....	.....	.....	
	2 0 p. m.	29.63	60	52	29.55	52	49	79	N. E.	9	.40	...	Stratus	1-4	0	0	0	.....	.....	.....	.....	.....	
	5 23 p. m.	29.63	57	54	29.56	54	49	67	S. E.	10	.50	...	Stratus	1-4	Cirrus	2-4	S. E.	.....	.....	.....	.....	.....	
	9 0 p. m.	29.61	54	49	29.55	49	46	78	S. E.	7	.24	...	Stratus	1-4	Cirrus	3-4	S. E.	.....	.....	.....	54	42	

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Meteorological record for the five days ending July 10, 1872.

STATION: UNALASKA, ALASKA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS Kind.	LOWER CLOUDS Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Saturday, July 6	1 23 a. m.	29.69	52	47	29.54	47	45	84	0	0	0	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	29.58	51	49	29.53	49	47	85	N. E.	6	.18	166	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	29.57	52	51	29.51	51	48	79	N. E.	1	.01	....	Stratus	4-4	.....	.....	.....	Night.	.....	.02	.....	.....	
	2 0 p. m.	29.50	53	49	29.44	49	47	85	N. W.	3	.04	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29.43	63	49	29.34	49	46	78	N. W.	7	.24	....	0	0	Cumulus	4-4	N. W.	.....	5.10 p. m.	.09	.....	.....	
	9 0 p. m.	29.40	63	45	29.31	45	44	92	N. E.	8	.32	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	54	45	
Sunday, July 7	1 23 a. m.	29.44	55	45	29.37	45	44	92	N. E.	18	1.62	....	Nimbus	4-4	.....	.....	.....	Night.	.....	.12	.....	.....	
	7 0 a. m.	29.59	52	46	29.53	47	44	77	N. E.	13	.84	226	Stratus	1-4	Cumulus	3-4	N. E.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.64	65	49	29.55	49	47	85	N. W.	4	.08	....	Stratus	1-2	Cirrus ..	1-2	N.	.....	6.20 a. m.	.22	.....	.....	
	2 0 p. m.	29.67	58	47	29.60	47	45	84	N.	19	1.80	....	Hazy ...	....	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.70	60	47	29.62	47	44	77	N.	15	1.12	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	9 0 p. m.	29.75	62	45	29.67	45	43	84	N.	12	.72	....	Stratus	1-4	Cumulus	1-4	N. E.	.....	.....	.....	.....	.....	
Monday, July 8	1 23 a. m.	29.76	51	44	29.70	44	43	91	N.	18	1.62	....	0	0	.....	.....	N.	D'g night.	D'g night.	.02	50	45	
	7 0 a. m.	29.78	62	46	29.69	46	43	76	N. W.	12	.72	315	Stratus	3-4	Cumulus	1-4	N.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.80	67	52	29.70	52	47	66	N. W.	10	.50	....	Stratus	3-4	Cumulus	1-4	N. W.	.....	.....	.....	.....	.....	
	2 0 p. m.	29.76	59	54	29.68	54	48	61	N. W.	12	.72	....	0	0	Cumulus	1-4	N. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.76	56	47	29.69	47	44	77	W.	11	.60	....	Stratus	1-2	Cirrus ..	1-2	W.	.....	.....	.....	.....	.....	
	9 0 p. m.	29.75	59	46	29.67	46	43	76	W.	9	.40	....	Stratus	1-4	Cumulus	3-4	W.	.....	.....	.....	54	44	
Tuesday, July 9	1 23 a. m.	29.79	56	45	29.72	45	43	84	N.	9	.40	....	Stratus	1-2	Cirrus ..	1-2	N. W.	.....	.....	.....	.....	.....	
	7 0 a. m.	29.84	60	50	29.76	50	47	78	N. E.	6	.18	235	0	0	Cirrus ..	3-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.87	63	49	29.78	49	46	78	N. E.	4	.08	....	Stratus	1-4	Cirrus ..	1-4	N. W.	.....	.....	.....	.....	.....	
	2 0 p. m.	29.92	66	47	29.82	47	45	84	N. E.	15	1.12	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29.95	67	50	29.85	50	48	85	N.	14	.98	....	Stratus	1-4	Cumulus	1-4	N.	.....	.....	.....	.....	.....	
	9 0 p. m.	29.95	55	47	29.88	47	46	92	E.	6	.18	....	Stratus	1-4	0	0	0	.....	.....	.....	50	45	
Wednesday, July 10	1 23 a. m.	29.96	55	44	29.88	44	42	83	N. E.	8	.32	....	Fog.....	1-4	0	0	0	.....	.....	.....	.....	.....	
	7 0 a. m.	29.96	55	46	29.89	46	44	84	N. E.	4	.08	233	0	0	Cumulus	1-4	N. E.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.99	53	48	29.93	48	45	77	N. E.	12	.72	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	2 0 p. m.	30.00	52	48	29.94	48	46	85	N. E.	12	.72	....	0	0	Cirrus ..	1-4	N. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.01	51	46	29.95	46	44	84	N. E.	13	.84	....	0	0	Cirrus ..	1-4	N. W.	.....	.....	.....	.....	.....	
	9 0 p. m.	30.05	55	43	29.98	43	42	91	N. E.	4	.08	....	Fog.....	4-4	.....	.....	.....	.....	.....	.....	50	43	

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Meteorological record for the five days ending July 15, 1872.

STATION: UNALASKA, ALASKA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Thursday, July 11	1 23 a. m.	30.03	52	42	29.97	42	41	91	N. E.	1	.01	....	Fog	4-4	.....	...	.....	.....	.....	....	....	....	
	7 0 a. m.	30.00	65	46	29.91	46	44	84	N. E.	5	.12	176	0	0	Cirrus ..	1-4	N.W.	.....	.....	....	....	....	
	10 23 a. m.	29.94	57	48	29.87	48	46	75	N. E.	6	.18	....	0	0	Cirrus ..	1-2	N.W.	.....	.....	....	....	....	
	2 0 p. m.	29.86	54	49	29.80	49	47	85	N. E.	7	.24	....	Stratus .	1-4	Cirrus ..	3-4	N W.	.....	.....	....	....	....	
	5 23 p. m.	29.80	53	49	29.74	49	46	78	S. E.	10	.50	....	Stratus .	1-4	Cirrus ..	1-4	N.W.	4.20 p. m.	5.15 p. m.	.01	....	....	
	9 0 p. m.	29.73	52	48	29.67	48	45	77	S.	13	.84	....	Stratus .	3-4	0	0	0	.....	.....	....	52	42	
Friday, July 12	1 23 a. m.	29.74	52	47	29.68	47	45	84	S. W.	1	.01	....	Stratus .	1-2	0	0	0	.....	.....	....	....	....	
	7 0 a. m.	29.75	52	50	29.69	50	47	78	W.	4	.08	176	0	0	Cumulus	1-4	W.	.....	.....	....	....	....	
	10 23 a. m.	29.75	53	53	29.69	53	50	79	W.	11	.60	....	0	0	Cumulus	1-4	W.	.....	.....	....	....	....	
	2 0 p. m.	29.75	53	51	29.69	51	48	79	N. E.	10	.50	....	Stratus .	1-2	Cirrus ..	1-2	S. W.	.....	.....	....	....	....	
	5 23 p. m.	29.81	64	48	29.72	48	46	85	N. E.	3	.04	....	Stratus .	4-4	.....	...	.....	.....	.....	....	....	....	
	9 0 p. m.	29.79	56	48	29.72	48	46	85	S.	4	.08	....	Nimbus	4-4	.....	...	.....	7.15 p. m.	9.20 p. m.	.01	53	47	
Saturday, July 13	1 23 a. m.	29.79	56	47	29.72	47	45	84	S.	2	.02	....	0	0	.....	...	.....	.....	.....	....	....	....	
	7 0 a. m.	29.78	54	49	29.72	49	47	85	S.	4	.08	148	Stratus .	1-2	Cirrus ..	1-2	S. W.	.....	.....	....	....	....	
	10 23 a. m.	29.80	53	52	29.74	52	47	66	S. W.	5	.12	..	Stratus .	1-2	Cumulus	1-2	S. W.	.....	.....	....	....	....	
	2 0 p. m.	29.81	52	53	29.75	53	49	73	S. W.	5	.12	....	Stratus .	4-4	.....	...	.....	.....	.....	....	....	....	
	5 23 p. m.	29.81	54	47	29.75	47	44	77	N. E.	4	.08	....	0	0	Cumulus	4-4	N. E.	11.15 a. m.	.....	.14	....	....	
	9 0 p. m.	29.85	53	46	29.79	46	44	84	S.	3	.04	....	Stratus .	1-2	Cirrus ..	1-2	S. W.	.....	6.20 p. m.	.02	53	46	
Sunday, July 14	1 23 a. m.	29.88	51	46	29.82	46	44	84	N. E.	3	.04	....	.....	...	.....	4-4	.....	.....	.....	....	....	....	
	7 0 a. m.	29.92	51	48	29.86	48	46	85	N. E.	2	.02	106	Stratus .	1-2	Cumulus	1-2	.....	.....	.....	....	....	....	
	10 23 a. m.	29.93	51	46	29.87	46	45	92	N. E.	1	.01	....	Stratus .	4-4	.....	...	.....	.....	.....	....	....	....	
	2 0 p. m.	29.96	51	48	29.90	48	46	85	N. E.	5	.12	....	Stratus .	4-4	.....	...	.....	.....	.....	....	....	....	
	5 23 p. m.	29.98	52	48	29.92	48	46	85	N. E.	6	.18	....	Stratus .	1-2	Cirrus ..	1-2	N. E.	11.50 a. m.	2.35 p. m.	.03	....	....	
	9 0 p. m.	29.99	52	46	29.93	46	44	84	E.	2	.02	....	0	0	Cumulus	3-4	E.	.....	.....	....	49	46	
Monday, July 15	1 23 a. m.	30.00	52	44	29.94	44	42	83	N. E.	3	.04	....	0	0	.....	4-4	.....	.....	.....	....	....	....	
	7 0 a. m.	30.06	52	45	30.00	45	43	84	N. E.	3	.04	116	Stratus .	1-2	Cumulus	1-2	N. E.	.....	.....	....	....	....	
	10 23 a. m.	30.08	50	48	30.03	48	46	85	N. E.	4	.08	....	Stratus .	1-2	Cirrus ..	1-2	N.	.....	.....	....	....	....	
	2 0 p. m.	30.10	51	48	30.04	48	46	85	N. E.	4	.08	....	Stratus .	1-2	Cumulus	1-2	W.	.....	.....	....	....	....	
	5 23 p. m.	30.11	51	46	30.05	46	45	92	N. E.	8	.32	....	Nimbus .	4-4	.....	...	.....	4.50 p. m.	.....	.02	....	....	
	9 9 p. m.	30.12	50	46	30.07	46	45	92	S.	1	.01	....	Stratus .	1-4	Cumulus	3-4	S.	.....	8.20 p. m.	.05	B'k	B'k	

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Meteorological record for the five days ending July 20, 1872.

STATION: UNALASKA, ALASKA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS Kind.	LOWER CLOUDS Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
	1 23 a. m.	30.09	51	45	30.03	45	44	92	S.	8	.32	....	0	0	.....	4-4	.....	.....	.....	.....	...	....	
	7 0 a. m.	30 03	52	48	29.97	48	46	85	S.	9	.40	218	0	0	Cumulus	4 4	S.	.....	.....	.....	...	....	
Tuesday, July 16...	10 23 a. m.	30.02	51	50	29.96	50	47	78	S.	12	.72	....	Stratus	4-4	.....	.....	.....	9.50 a. m.	.....	.01	...	....	
	2 0 p. m.	29.98	51	50	29.92	50	47	78	S.	14	.98	....	0	0	Cumulus	4-4	S.	.....	.....	.....	...	....	
	5 23 p. m.	29.94	51	48	29.88	48	46	85	S.	15	1.12	....	Stratus	4-4	.....	.....	.....	.....	.....	.05	...	....	
	9 0 p. m.	29.91	51	48	29.85	48	46	85	S.	11	.60	....	Stratus	1-4	Cumulus	3-4	S.	.....	.....	.....	50	46	
	1 23 a. m.	29.81	51	49	29.75	49	47	85	S.	18	1.62	....	Stratus	4-4	.....	.....	.....	.....	.....	.16	...	....	
	7 0 a. m.	29.67	51	51	29.62	51	48	79	S. E.	13	.84	344	Nimbus	4-4	.....	.....	.....	.....	.....	.....	...	....	
Wednesday, July 17	10 23 a. m.	29.63	51	50	29.58	50	48	85	S.	11	.60	....	Stratus	1-4	Cumulus	3-4	S.	.....	.....	.09	...	....	
	2 0 p. m.	29.60	52	51	29.54	51	49	85	S.	14	.98	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	...	....	
	5 23 p. m.	29.61	70	54	29.51	54	50	73	S.	8	.32	....	Stratus	1-2	Cirrus ..	1-4	S.	.....	2.50 a. m.	.03	...	....	
	9 0 p. m.	29.59	59	49	29.51	49	47	85	S.W.	3	.04	....	Stratus	3-4	Cumulus	1-4	S. W.	.....	.....	...	55	48	
	1 23 a. m.	29.58	54	48	29.52	48	47	92	N. E.	3	.04	....	Fog.....	4-4	.....	.....	.....	.....	.....	.....	...	....	
	7 0 a. m.	29.59	53	49	29.53	49	46	78	S.	5	.12	208	0	0	Cumulus	1-2	S.	.....	.....	.....	...	....	
Thursday, July 18.	10 23 a. m.	29.60	53	52	29.54	52	48	72	S.	9	.40	....	0	0	Cumulus	4-4	S.	9.50 a. m.	10.00 a. m.	.01	...	....	
	2 0 p. m	29.59	54	53	29.53	53	49	73	S.	11	.60	....	0	0	Cumulus	4-4	S.	.....	.....	.....	...	....	
	5 23 p. m.	29.65	53	51	29.59	51	47	72	S.W.	6	.18	....	0	0	Cumulus	4-4	S. W.	.....	.....	.....	...	....	
	9 0 p. m.	29.67	53	49	29.61	49	44	63	S.W.	3	.04	....	Stratus	1-4	Cumulus	1-2	S. W.	.....	.....	.....	54	48	
	1 23 a. m.	29.76	52	47	29.70	47	44	77	S.W.	4	.08	....	0	0	Cumulus	3-4	S. W.	.....	.....	.....	...	....	
	7 0 a. m.	29.90	52	49	29.84	49	45	71	S.W.	6	.18	181	Stratus	1-4	Cirrus ..	1-4	S. W.	.....	.....	.....	...	....	
Friday, July 19	10 23 a. m.	29.94	53	52	29.88	52	48	72	W.	5	.12	....	Stratus	1-4	Cirrus ..	1-4	S.W.	.....	.....	.....	...	....	
	2 0 p. m.	30.00	55	58	29.93	58	52	64	W.	9	.40	....	0	0	Cirrus ..	1-2	S.W.	.....	.....	.....	...	....	
	5 33 p. m.	30.02	54	51	29.96	51	47	72	N. E.	1	.01	....	Stratus	1-4	Cirrus ..	1-2	S.W.	.....	.....	.....	...	....	
	9 0 p. m.	30.05	52	49	29.99	49	45	71	S.	4	.08	....	Stratus	1-2	Cirrus ..	1-2	S.W.	.....	.....	.....	59	47	
	1 23 a. m.	30.02	52	49	29.96	49	46	78	S.	10	.50	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	...	....	
	7 0 a. m.	29.97	52	49	29.91	49	46	78	S.	9	.40	165	Stratus	4-4	.....	.....	.....	.....	.....	.....	...	....	
Saturday, July 20..	10 23 a. m.	29.97	52	51	29.91	51	48	79	S.	11	.60	....	Stratus	4-4	.....	.....	.....	10.00 a. m.	10.30 a. m.	.00	...	....	
	2 0 p. m.	29.93	54	53	29.87	53	49	73	S.	11	.60	....	Stratus	3-4	Cirrus ..	1-4	S.W.	.....	.....	.....	...	....	
	5 23 p. m.	29.91	53	51	29.85	51	47	72	S. W.	7	.24	....	0	0	Cumulus	3-4	S.W.	.....	.....	.....	...	....	
	9 0 p. m.	29.88	58	48	29.81	48	44	70	S. W.	10	.50	...	Stratus	3-4	Cirrus ..	1-4	S. W.	.....	.....	.....	54	48	

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Meteorological record for the five days ending July 25, 1872.

STATION: UNALASKA, ALASKA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commenc'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Sunday, July 21	1 23 a. m.	29.76	55	45	29.79	45	42	76	W.	2	.02	....	0	0	Cumulus	4-4	W.	10.45 p. m.		....	....	....	
	7 0 a. m.	29.75	52	44	29.79	44	42	83	S. W.	5	.12	176	Stratus	4-4	....	....	....	....		....	....	....	
	10 23 a. m.	29.76	52	49	29.80	49	46	78	W.	9	.40	....	0	0	Cumulus	3-4	W.	....	8.50 a. m.	.02	....	....	
	2 0 p. m.	29.91	52	50	29.85	50	45	64	W.	10	.50	....	0	0	Cumulus	4-4	W.	....	....	....	....	....	
	5 23 p. m.	29.94	52	49	29.78	49	44	63	W.	9	.40	....	0	0	Cumulus	3-4	W.	....	....	....	....	....	
	9 0 p. m.	30.01	53	45	29.95	45	42	76	W.	9	.40	....	0	0	Cumulus	3-4	W.	....	....	....	50	44	
Monday, July 22	1 23 a. m.	30.07	51	44	30.01	44	41	75	W.	4	.08	....	0	0	Cumulus	4-4	W.	....	....	....	....	....	
	7 0 a. m.	30.16	50	48	30.11	48	44	70	W.	6	.18	196	0	0	Cumulus	4-4	S. E.	....	....	....	....	....	
	10 23 a. m.	30.16	51	49	30.10	49	45	71	N. E.	4	.08	....	Stratus	1-4	Cirrus	1-4	S. W.	....	....	....	....	....	
	2 0 p. m.	30.17	51	48	30.11	48	45	77	N. E.	8	.32	....	Stratus	1-4	Cirrus	1-2	S. W.	....	....	....	....	....	
	5 23 p. m.	30.16	49	47	30.11	47	44	77	N. E.	7	.24	....	Stratus	3-4	Cirrus	1-4	S. W.	....	....	....	....	....	
	9 0 p. m.	30.17	50	45	30.12	45	42	76	E.	1	.01	....	Stratus	1-2	Cirrus	1-2	S. W.	....	....	....	55	44	
Tuesday, July 23	1 23 a. m.	30.14	50	46	30.09	46	44	84	S. E.	3	.04	....	0	0	Cirrus	3-4	....	....	....	....	....	....	
	7 0 a. m.	30.11	51	49	30.05	49	47	85	S. E.	4	.08	135	Stratus	4-4	....	....	....	....	....	....	....	....	
	10 23 a. m.	30.11	51	52	30.05	52	49	79	S. E.	6	.18	....	Stratus	4-4	....	....	....	....	....	....	....	....	
	2 0 p. m.	30.11	52	49	30.05	52	49	79	S. E.	8	.32	....	Stratus	4-4	....	....	....	....	....	....	....	....	
	5 23 p. m.	30.08	51	48	30.02	48	47	92	S. E.	8	.32	....	Stratus	4-4	....	....	....	....	1.35 p. m.	.02	....	....	
	9 0 p. m.	30.11	54	47	30.05	47	46	92	S. E.	7	.24	....	Stratus	4-4	....	....	....	....	....	....	52	46	
Wednesday, July 24	1 23 a. m.	30.11	51	47	30.05	47	46	92	S. E.	6	.18	....	Stratus	4-4	....	....	....	....	....	.10	....	....	
	7 0 a. m.	30.14	52	49	30.08	49	48	92	S.	8	.32	....	Stratus	1-2	Cirrus	1-2	....	....	....	....	....	....	
	10 23 a. m.	30.11	52	47	30.05	47	46	92	S. E.	6	.18	195	Stratus	1-2	Cirrus	1-2	....	....	....	.04	....	....	
	2 0 p. m.	30.15	54	56	30.09	56	54	87	S. E.	4	.08	....	Stratus	1-2	Cirrus	1-2	S.	....	....	....	....	....	
	5 23 p. m.	30.14	53	52	30.08	52	51	93	S. E.	12	.72	....	Stratus	3-4	Cirrus	1-4	S.	....	....	.01	....	....	
	9 0 p. m.	30.14	52	52	30.08	52	50	86	S. E.	12	.72	....	Stratus	4-4	....	....	....	....	....	....	56	47	
Thursday, July 25	1 23 a. m.	30.14	52	53	30.08	53	52	93	S.	11	.60	....	Stratus	1-2	Cirrus	1-2	S.	....	....	.02	....	....	
	7 0 a. m.	30.14	57	59	30.07	59	56	81	S.	8	.32	304	Stratus	1-2	Cirrus	1-2	S.	....	....	....	....	....	
	10 23 a. m.	30.14	66	61	30.04	61	58	82	S.	2	.02	....	Stratus	3-4	Cirrus	1-4	S. W.	....	11.40 a. m.	.03	....	....	
	2 0 p. m.	30.10	65	62	30.01	62	59	82	S.	9	.40	....	Stratus	1-2	Cirrus	1-4	S. W.	....	....	....	....	....	
	5 23 p. m.	30.11	62	58	30.02	58	55	81	S.	2	.02	....	Stratus	1-4	Cirrus	3-4	S. W.	....	....	....	....	....	
	9 0 p. m.	30.13	58	52	30.06	52	51	93	N. W.	9	.40	....	Stratus	1-4	Cirrus	1-2	S.	....	....	....	71	52	

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Meteorological record for the five days ending July 30, 1872.

STATION: UNALASKA, ALASKA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow	THERM. Maximum.	THERM. Minimum.	Remarks.
Friday, July 26	1 23 a. m.	30. 13	56	53	30. 06	53	51	86	W.	3	.04	....	Stratus	1-2	Cirrus	1-2	S.						
	7 0 a. m.	30. 13	57	56	30. 06	56	53	80	S. W.	4	.08	125	0	0	Cumulus	1-4	S. W.						
	10 23 a. m.	30. 13	58	61	30. 06	61	58	82	W.	5	.12	....	Stratus	1-4	Cumulus	1-4	W.						
	2 0 p. m.	30. 14	54	51	30. 08	51	48	79	N. E.	8	.32	....	Stratus	1-4	Cirrus	1-4	W.						
	5 23 p. m.	30. 13	54	54	30. 07	54	51	80	S.	12	.72	....	Stratus	1-4	Cumulus	3-4	S. W.						
	9 0 p. m.	30. 15	54	50	30. 09	50	47	78	W.	7	.24	....	Stratus	4-4									
Saturday, July 27	1 23 a. m.	30. 15	53	48	30. 09	48	45	77	W.	11	.60	....	Stratus	4-4							64	50	
	7 0 a. m.	30. 17	53	51	30. 11	51	48	79	W.	8	.32	232	Stratus	3-4	0	0	0						Two earthquake shocks at 3 a. m.
	10 23 a. m.	30. 17	53	52	30. 11	52	49	79	W.	9	.40	....	0	0	Cumulus	4-4	N. W.						
	2 0 p. m.	30. 21	54	54	30. 15	54	50	73	N. W.	8	.32	....	Stratus	1-4	Cirrus	1-4	N. W.						
	5 23 p. m.	30. 23	54	51	30. 17	51	48	79	W.	5	.12	....	Stratus	3-4	Cirrus	1-4							
	9 0 p. m.	30. 24	56	51	30. 17	51	49	85	W.	7	.24	....	Stratus	1-2	Cirrus	1-4	N. W.				54	48	
Sunday, July 28	1 23 a. m.	30. 24	54	49	30. 18	49	48	92	N. W.	9	.40	....	Stratus	4-4				Night		.00			
	7 0 a. m.	30. 24	53	50	30. 18	50	48	85	N. E.	4	.08	213	Stratus	1-2	Cirrus	1-2	N. W.						
	10 23 a. m.	30. 23	54	55	30. 17	55	53	86	W.	2	.02	....	Stratus	4-4						.02			
	2 0 p. m.	30. 17	56	62	30. 10	62	59	82	W.	4	.08	....	Stratus	4-4									
	5 23 p. m.	30. 17	58	59	30. 10	59	57	87	N. W.	3	.04	....	Stratus	4-4						.03			
	9 0 p. m.	30. 17	57	54	30. 10	54	53	93	N.	8	.32	....	Stratus	4-4									
Monday, July 29	1 23 a. m.	30. 26	55	46	30. 19	46	45	92	N.	12	.72	....	Stratus	4-4							62	49	
	7 0 a. m.	30. 29	54	45	30. 22	45	43	84	N. E.	6	.18	185	Stratus	1-4	Cirrus	1-4	N. W.		11.20 p. m	.02			
	10 23 a. m.	30. 30	53	52	30. 24	52	50	86	N. E.	5	.12	....	Stratus	1-4	Cirrus	1-4	N. W.						
	2 0 p. m.	30. 34	53	49	30. 28	49	48	92	N. E.	7	.24	....	Fog	4-4									
	5 23 p. m.	30. 36	53	49	30. 30	49	47	85	N. E.	2	.02	....	Stratus	3-4	Cirrus	1-4	N. W.						
	9 0 p. m.	30. 38	53	48	30. 32	48	46	85	0	0	0	....	Stratus	3-4	Cirrus	1-4	N. W.				50	45	
Tuesday, July 30	1 23 a. m.	30. 38	53	48	30. 32	48	47	92	N. E.	4	.08	....	Stratus	4-4									
	7 0 a. m.	30. 38	52	50	30. 32	50	49	92	E.	2	.02	130	Stratus	4-4				11.00 p. m		.00			
	10 23 a. m.	30. 37	53	51	30. 31	51	50	92	0	0	0	....	Stratus	4-4									
	2 0 p. m.	30. 34	53	53	30. 28	53	52	93	E.	1	.01	....	Stratus	4-4						.17			
	5 23 p. m.	30. 31	53	55	30. 25	55	53	86	W.	8	.32	....	Stratus	4-4									
	9 0 p. m.	30. 33	57	52	30. 26	52	50	86	W.	7	.24	....	Stratus	3-4	Cumulus	1-4	W.		4.35 p. m.	.22			
																					55	48	

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Meteorological Record for the four days ending August 3, 1872.

STATION: UNALASKA, ALASKA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Corrected barom. etc.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (North from W.)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	RAIN OR SNOW. Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Wednesday, July 31	1 23 a. m.	30.34	56	50	30.27	50	49	92	N.	3	.04	...	Stratus	4-4	.....	.....	.....	10.20 p. m.	.....	.02	...	...	
	7 0 a. m.	30.33	52	50	30.27	50	48	85	N.	3	.04	234	0	0	Cumulus	4-4	W.						
	10 23 a. m.	30.32	52	49	30.26	49	47	85	E.	6	.18	...	Stratus	4-4	Cumulus	3-4	S. W.		Night.	.01	...	...	
	2 0 p. m.	30.29	51	49	30.23	49	48	92	N.E.	6	.18	...	Stratus	1-4	.....	.....	.....	.....	.....	.....	...	...	
	5 23 p. m.	30.25	51	47	30.19	47	46	92	E.	9	.40	...	Stratus	4-4	.....	.....	.....	.....	.....	.....	52	47	
	9 0 p. m.	30.32	76	44	30.20	46	46	85	N.W.	1	.01	...	Stratus	4-4	.....	.....	.....	.....	.....	.....	...	...	
	1 23 a. m.	30.27	61	47	30.19	47	45	94	N.E.	2	.02	...	Stratus	4-4	.....	.....	.....	.....	.....	.....	...	...	
	7 0 a. m.	30.22	55	49	30.15	49	47	85	N.E.	3	.04	154	Stratus	1-2	Cumulus	1-2	N.W.	.....	.....	.00	...	...	
Thursday, Aug. 1	10 23 a. m.	30.24	53	49	30.18	49	46	78	N.E.	6	.18	...	Stratus	1-4	Cumulus	3-4	W.	9.40 a. m.	.....	.....	...	...	
	2 0 p. m.	30.21	51	48	30.15	48	46	85	N.E.	8	.32	...	Stratus	4-4	.....	.....	.....	.....	.....	.....	...	...	
	5 23 p. m.	30.18	52	48	30.12	48	46	83	N.E.	8	.32	...	Stratus	4-4	.....	.....	.....	.....	10.30 a. m.	.01	...	...	
	9 0 p. m.	30.14	52	46	30.08	48	47	92	N.E.	2	.02	...	Stratus	1-4	Cumulus	3-4	W.	.....	.....	.....	50	47	
	1 23 a. m.	30.10	51	48	30.04	48	47	92	0	0	0	...	.....	4-4	.....	.....	.....	.....	.....	.....	...	...	
	7 0 a. m.	30.06	53	51	30.00	51	49	85	0	0	0	143	Stratus	1-2	Cirrus...	1-2	W.	.....	.....	.....	...	...	
	10 23 a. m.	30.02	54	56	29.96	56	53	80	W.	1	.01	...	Stratus	1-2	Cirrus...	1-2	W.	.....	.....	.....	...	...	
Friday, Aug. 2	2 0 p. m.	29.97	56	59	29.90	59	55	76	S.E.	6	.18	...	Stratus	1-2	Cirrus...	1-2	W.	.....	.....	.....	...	...	
	5 23 p. m.	29.87	53	54	29.80	54	51	80	S.E.	17	1.44	...	Stratus	3-4	Cumulus	1-4	S.	2.20 p. m.	.....	.00	61	46	
	9 0 p. m.	29.85	53	53	29.78	52	50	92	S.E.	10	.50	...	Stratus	1-2	Cumulus	1-2	S.	.....	.....	.....	...	...	
	1 23 a. m.	29.85	55	51	29.78	51	50	92	S.E.	12	.72	...	.....	4-4	.....	.....	.....	.....	.....	.14	...	...	
	7 0 a. m.	29.84	55	52	29.77	52	50	96	S.E.	11	.60	236	Stratus	3-4	Cirrus...	1-4	W.	.....	.....	.....	...	...	
Saturday, Aug. 3	10 23 a. m.	29.85	54	53	29.79	53	51	86	S.E.	14	.98	...	Stratus	4-4	.....	.....	.....	.....	.....	.19	...	...	
	2 0 p. m.	29.90	54	52	29.84	52	50	86	S.E.	13	.84	...	Nimbus.	4-4	.....	.....	.....	.....	.....	.....	...	...	
	5 23 p. m.	29.94	54	49	29.87	49	48	90	S.E.	9	.40	...	Nimbus.	4-4	.....	.....	.....	.....	.....	.09	...	...	
	9 0 p. m.	30.09	73	49	29.96	49	47	85	S.E.	14	.98	...	Nimbus.	4-4	.....	.....	.....	.....	.....	.....	...	...	

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Meteorological record for the five days ending August 22, 1872.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Comm'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Sunday, Aug 18	1 23 a. m	30.01	62	48	29.92	48	47	92	S.	16	1.28	....	0	0	Cumulus	4-4	S.	10.30 p. m.	.....	.01	.....	.....	
	7 0 a. m	30.00	60	48	29.92	47	47	92	S. W.	17	1.44	....	0	0	Cumulus	4-4	S. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.01	64	49	29.92	49	47	85	S. W.	26	3.38	432	Stratus	4-4	.....	.....	.....	.....	.....	.05	.....	.....	
	2 0 p. m	29.97	64	49	29.87	49	48	92	S. W.	25	3.12	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m	30.02	66	48	29.92	48	47	92	W.	26	3.38	....	Stratus	4-4	.....	.....	.....	1.20 p. m.	3.50 p. m.	.01	.....	.....	
	9 0 p. m.	30.15	66	46	30.05	46	45	92	W.	21	2.61	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	50	48	
Monday, Aug. 19	1 23 a. m.	30.22	63	45	30.13	45	44	92	W.	17	1.44	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	7 0 a. m	30.32	60	45	30.24	45	44	92	W.	11	.60	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	30.34	64	48	30.25	48	47	92	W.	9	.40	287	Fog	3-4	.....	.....	.....	.....	.....	.....	.....	.....	
	2 0 p. m.	30.33	63	49	30.24	49	48	92	W.	14	.98	....	Fog	1-2	0	0	0	.....	.....	.....	.....	.....	
	5 23 p. m	30.33	63	46	30.24	46	45	92	W.	13	.84	....	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	9 0 p. m.	30.35	67	44	30.25	44	44	100	W.	14	.98	....	Fog	4-4	.....	.....	.....	.....	.....	.....	50	45	
Tuesday, Aug. 20	1 23 a. m.	30.33	64	45	30.24	45	44	92	W.	14	.98	....	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	30.30	61	45	30.22	45	45	100	W.	12	.72	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	30.32	63	49	30.24	49	48	92	W.	14	.98	269	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	.....	
	2 0 p. m	30.31	64	48	30.22	48	47	92	W.	11	.60	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m	30.30	67	46	30.20	46	45	92	W.	12	.72	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	9 0 p. m	30.34	68	44	30.24	44	43	91	W.	8	.32	....	0	0	0	0	0	.....	.....	.....	49	44	
Wednesday, Aug. 21	1 23 a. m	30.33	66	46	30.23	46	45	92	S. W.	6	.18	....	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	7 0 a. m	30.25	67	47	30.15	47	46	92	S. W.	8	.32	....	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m	30.21	70	49	30.10	49	48	92	S. W.	10	.50	241	Nimbus	4-4	.....	.....	.....	Night	.....	.....	.....	.....	
	2 0 p. m	30.20	67	50	30.10	50	49	92	N. W.	11	.60	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m	30.20	65	48	30.11	48	47	92	N. W.	9	.40	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	9 0 p. m	30.25	74	46	30.13	46	45	92	N. W.	8	.32	....	Fog	4-4	.....	.....	.....	.....	11 a. m	.11	.....	.....	
Thursday, Aug. 22	1 23 a. m	30.25	68	45	30.15	45	44	92	S.	3	.04	....	Fog	4-4	.....	.....	.....	.....	.....	.....	51	44	
	7 0 a. m.	30.27	64	47	30.18	47	46	92	E.	2	.02	....	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m	30.30	69	49	30.19	49	48	92	E.	3	.04	124	Stratus	1-2	Cirrus	1 2	E.	.....	.....	.....	.....	.....	
	2 0 p. m	30.30	69	50	30.19	50	49	92	S. E.	1	.01	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	30.28	69	50	30.17	50	48	85	S.	3	.04	....	Stratus	1-2	Cirrus	1-2	.....	.....	.....	.....	.....	.....	
	9 0 p. m.	30.29	60	47	30.18	47	46	92	Calm	0	.00	....	Nimbus	4-4	.....	.....	.....	.....	.....	.....	50	45	

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Meteorological record for the five days ending August 27, 1872.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Friday, Aug. 23	1 23 a. m.	30.26	66	46	30.16	46	45	92	S.	1	.01	....	Fog	4-4	.....	.....	.....	8.20 p. m.	Night	.01	.....	.....	
	7 0 a. m.	30.19	62	48	30.10	48	47	92	S. W.	5	.12	....	Fog	1-2	Cirrus	1-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.18	67	50	30.08	50	49	92	W.	7	.24	116	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	2 0 p. m.	30.13	66	51	30.03	51	50	92	S. W.	8	.32	....	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	30.08	67	49	29.98	49	48	92	S. W.	9	.40	....	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	9 0 p. m.	30.06	70	47	29.95	47	46	92	S. W.	11	.60	....	Fog	4-4	.....	.....	.....	.....	.....	.....	52	46	
Saturday, Aug. 24	1 23 a. m.	30.05	64	46	29.96	46	45	92	S. W.	9	.40	....	Fog	4-4	.....	.....	.....	7.30 p. m.	10.20 p. m.	.02	.....	.....	
	7 0 a. m.	29.98	63	47	29.89	47	46	92	W.	10	.50	....	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	29.97	65	49	29.88	49	48	92	W.	8	.32	235	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	2 0 p. m.	29.97	65	51	29.88	51	49	85	W.	12	.72	....	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29.95	66	48	29.85	48	47	92	W.	12	.72	....	Fog	1-4	Cirrus	1-2	W.	.....	.....	.....	.....	.....	
	9 0 p. m.	29.96	65	49	29.87	49	48	92	N.	13	.84	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	51	46	
Sunday, Aug. 25	1 23 a. m.	30.00	65	46	29.91	46	44	84	N.	15	1.12	....	0	0	Cumulus	4-4	N.	9.30 p. m.	.....	.10	.....	.....	
	7 0 a. m.	30.08	67	45	29.98	45	42	76	N.	18	1.62	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.11	68	46	30.01	46	43	76	N.	16	1.28	442	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	2 0 p. m.	30.10	66	46	30.00	46	43	76	N.	18	1.62	....	0	0	Cumulus	4-4	N.	.....	1.25 p. m.	.....	.....	.....	
	5 23 p. m.	30.07	63	46	29.98	46	44	84	N.	16	1.28	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	9 0 p. m.	30.10	68	45	30.00	45	42	76	N.	16	1.28	....	0	0	Cumulus	4-4	N.	.....	.....	.....	49	45	
Monday, Aug. 26	1 23 a. m.	30.08	67	44	29.98	44	42	83	N.	12	.72	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.08	67	46	29.98	46	44	84	N.	13	.84	....	Stratus	1-4	Cumulus	1-4	N.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.12	64	51	30.03	51	47	72	N.	16	1.28	349	0	0	0	0	0	.....	.....	.....	.....	.....	
	2 0 p. m.	30.11	62	51	30.02	51	47	72	N.	9	.40	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	5 23 p. m.	30.14	67	49	30.04	49	46	78	N.	5	.12	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	.....	.....	
	9 0 p. m.	30.15	71	42	30.04	42	41	91	N. W.	3	.04	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	52	44	
Tuesday, Aug. 27	1 23 a. m.	30.15	66	43	30.05	43	42	91	N. W.	3	.04	....	Stratus	1-4	Cirrus	1 4	N. W.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.14	61	46	30.06	46	45	92	W.	3	.04	....	Stratus	1-2	Cirrus	1-2	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.14	64	51	30.05	51	49	85	S. W.	4	.08	112	Stratus	4-4	.....	.....	.....	9.05 a. m.	9.15 a. m.	.00	.....	.....	
	2 0 p. m.	30.14	62	48	30.05	48	47	92	S. W.	4	.08	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	30.14	71	48	30.03	48	46	85	W.	7	.24	....	Stratus	1-2	Cirrus	1-2	W.	.....	.....	.....	.....	.....	
	9 0 p. m.	30.15	70	46	30.04	46	45	92	S. W.	2	.02	....	Stratus	1-2	Cirrus	1-2	.....	.....	.....	.....	51	42	

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Meteorological record for the five days ending September 1, 1872.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Wet bulb.	HYGROM. Dry bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Comm'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Wednesday, Aug. 28	1 23 a. m.	30. 14	65	46	30. 05	46	45	92	S. W.	2	.02	....	Stratus .	1-2	Cirrus ..	1-2	S.W.	.....	.....	.....	.....	.....	
	7 a. m.	30. 11	62	47	30. 02	47	46	92	S. W.	4	.08	....	Stratus .	1-2	Cirrus ..	1-2	S.W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30. 10	62	51	30. 01	51	48	79	S. W.	4	.08	89	0	0	Cumulus	3-4	S W.	.....	.....	.....	.....	.....	
	2 p. m.	30. 08	63	54	29. 99	54	51	80	S. W.	5	.12	....	0	0	Cumulus	4-4	S.W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30. 05	63	51	29. 96	51	48	79	S. W.	3	.04	....	0	0	Cumulus	4-4	S.W.	.....	.....	.....	.....	.....	
	9 p. m.	30. 08	69	46	29. 98	46	44	84	S. W.	4	.08	....	0	0	Cumulus	4-4	S.W.	.....	.....	.....	54	46	Heavy swell.
Thursday, Aug. 29.	1 23 a. m.	30. 05	65	45	29. 96	45	44	92	S.	2	.02	....	0	0	Cumulus	4-4	S.W.	.....	.....	.....	.....	.....	
	7 a. m.	29. 99	61	46	29. 91	46	44	84	S. E.	4	.06	....	0	0	Cumulus	4-4	S. E.	.....	.....	.....	.....	.....	
	10 23 a. m.	29. 96	62	48	29. 87	48	45	77	E.	7	.24	168	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	2 p. m.	29. 89	62	49	29. 80	49	47	85	E.	9	.40	....	Stratus .	3-4	Cumulus	1-4	S. E.	.....	.....	.....	.....	.....	
	5 23 p. m.	29. 86	73	47	29. 75	47	45	84	N. E.	11	.60	....	Stratus .	1-4	Cirrus ..	1-2	S. E.	.....	.....	.....	.....	.....	
	9 p. m.	29. 83	70	45	29. 72	45	44	92	E.	14	.98	....	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
Friday, Aug. 30....	1 23 a. m.	29. 74	64	46	29. 65	46	45	92	E.	21	2. 20	....	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	51	45	
	7 a. m.	29. 59	59	47	29. 51	47	46	92	N. E.	24	2. 88	....	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	29. 56	70	47	29. 46	47	46	92	N. E.	20	2. 00	518	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	2 p. m.	29. 47	64	47	29. 38	47	46	92	N. E.	26	3. 38	....	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29. 41	65	47	29. 32	47	46	92	N. E.	28	3. 92	....	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	9 p. m.	29. 38	70	47	29. 28	47	46	92	N.	34	5. 78	....	Stratus .	4-4	.....	.....	.....	.....	.....	.....	48	45	Gale.
Saturday, Aug. 31..	1 23 a. m.	29. 35	65	46	29. 26	46	45	92	N.	35	6. 12	....	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	7 a. m.	29. 30	61	47	29. 22	47	46	92	N.	24	2. 88	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	29. 29	65	48	29. 20	48	47	92	N.	27	3. 64	632	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	2 p. m.	29. 30	66	48	29. 21	48	47	92	N.	27	3. 64	....	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29. 32	69	46	29. 22	46	45	92	N.	40	8. 00	....	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	9 p. m.	29. 34	75	45	29. 26	45	44	92	N.	41	8. 40	....	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
Sunday, Sept. 1	1 23 a. m.	29. 41	66	45	29. 32	45	44	92	N.	33	5. 44	....	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	48	45	Gale.
	7 a. m.	29. 45	60	45	26. 37	45	44	92	N.	22	2. 42	....	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	29. 54	68	46	29. 44	46	45	92	N.	21	2. 20	605	Stratus .	4-4	.....	.....	.....	.....	D'g night	D'g night	.14	.....	
	2 p. m.	29. 57	60	46	29. 49	46	45	92	N.	23	2. 64	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	29. 62	64	44	29. 53	44	43	91	N.	20	2. 00	....	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	.....	
	9 p. m.	29. 71	73	41	29. 60	41	40	91	N.	7	.24	....	0	0	0	0	0	.....	.....	.....	46	45	Perf'tly cloudless 9 p. m.

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Meteorological record for the five days ending September 6, 1872.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Monday, Sept. 2	1 23 a. m.	29.75	65	42	29.66	42	41	91	N. E.	2	.02	....	0	0	Cirrus	1-4	W.	.....	.....	....	....	....	
	7 0 a. m.	29.81	61	44	29.73	44	42	83	N. E.	7	.24	....	0	0	Cumulus	3-4	N. E.	.....	.....	....	....	....	
	10 23 a. m.	29.84	66	47	29.74	47	45	84	E.	12	.72	239	Stratus	4-4	.....	....	.....	10.00 a. m.	10.10 a. m.	....	....	....	Sprinkle.
	2 0 p. m.	29.86	71	48	29.77	48	46	85	N. E.	14	.98	....	Stratus	4-4	.....	....	.....	.....	.....	....	....	....	
	5 23 p. m.	29.85	70	47	29.74	47	45	84	N. E.	15	1.12	....	Stratus	1-2	Cirrus	1-2	S. E.	.....	.....	....	....	....	Haze.
	9 0 p. m.	29.85	73	46	29.74	46	45	92	N. E.	15	1.12	....	.....	....	Cumulus	4-4	.....	.....	.....	....	49	41	
Tuesday, Sept. 3	1 23 a. m.	29.77	67	46	29.67	46	45	92	N. E.	16	1.28	....	.....	....	Cirrus	4-4	.....	.....	.....	....	....	....	
	7 0 a. m.	29.66	62	47	29.58	47	46	92	E.	16	1.28	....	Stratus	4-4	.....	....	.....	.....	.....	....	....	....	
	10 23 a. m.	29.62	67	48	29.52	48	47	92	E.	17	1.44	394	Stratus	4-4	.....	....	.....	.....	.....	....	....	....	
	2 0 p. m.	29.56	66	48	29.47	48	47	92	E.	22	2.42	....	Stratus	4-4	.....	....	.....	.....	.....	....	....	....	
	5 23 p. m.	29.50	69	49	29.40	49	48	92	E.	22	2.42	....	Stratus	1-2	Cirrus	1-2	.....	2.20 p. m.	2.25 p. m.	....	....	....	Sprinkle.
	9 0 p. m.	29.50	70	49	29.40	49	48	92	E.	27	3.64	....	Stratus	4-4	.....	....	.....	.....	.....	....	49	46	
Wednesday, Sept. 4	1 23 a. m.	29.44	67	48	29.34	48	47	92	E.	14	.98	....	Stratus	4-4	.....	....	.....	5.35 p. m.	Night	.12	....	....	
	7 0 a. m.	29.42	64	48	29.33	48	47	92	E.	9	.40	...	Fog	4-4	.....	....	.....	.....	.....	....	....	....	
	10 23 a. m.	29.42	66	49	29.33	49	49	100	E.	12	.72	357	Fog	4-4	.....	....	.....	.....	.....	....	....	....	
	2 0 p. m.	29.40	63	49	29.31	49	48	92	E.	15	1.12	....	Fog	4-4	.....	....	.....	.....	.....	....	....	....	
	5 23 p. m.	29.39	66	49	29.30	49	48	92	S. E.	12	.72	....	Nimbus	4-4	.....	....	.....	12.10 p. m.	.....	.13	....	....	
	9 0 p. m.	29.42	68	48	29.32	48	47	92	S. E.	9	.40	....	Fog	4-4	.....	....	.....	.....	.....	....	49	47	
Thursday, Sept. 5	1 23 a. m.	29.41	64	46	29.32	46	45	92	E.	13	.81	....	Nimbus	4-4	.....	....	.....	.....	.....	.03	....	....	
	7 0 a. m.	29.40	60	47	29.32	47	47	100	E.	11	.60	....	Fog	4-4	.....	....	.....	.....	.....	....	....	....	
	10 23 a. m.	29.47	66	48	29.38	48	48	100	E.	7	.24	249	Fog	4-4	.....	....	.....	.....	.....	.04	....	....	
	2 0 p. m.	29.48	63	50	29.39	50	49	92	E.	7	.24	....	Stratus	1-2	Cirrus	1-2	.....	.....	.....	....	....	....	
	5 23 p. m.	29.53	65	49	29.44	49	48	92	N.	6	.18	....	Fog	4-4	.....	....	.....	.....	6.05 p. m.	.05	....	....	
	9 0 p. m.	29.64	65	47	29.55	47	46	92	N.	5	.12	....	Stratus	4-4	.....	....	.....	.....	.....	....	51	46	
Friday, Sept. 6	1 23 a. m.	29.69	62	46	29.61	46	45	92	W.	7	.24	....	Stratus	4-4	.....	....	.....	.....	.....	....	....	....	
	7 0 a. m.	29.78	60	46	29.70	46	45	92	W.	14	.98	....	Stratus	4-4	.....	....	.....	.....	.....	....	....	....	
	10 23 a. m.	29.80	68	48	29.70	48	46	85	S. W.	15	1.12	255	Stratus	1-4	Cirrus	1-4	S. W.	.....	.....	....	....	....	
	2 0 p. m.	29.76	66	47	29.66	47	46	92	S. W.	17	1.44	....	Stratus	4-4	.....	....	.....	.....	.....	....	....	....	
	5 23 p. m.	29.70	63	46	29.61	46	45	92	S. W.	17	1.44	....	Stratus	1-2	Cirrus	1-2	S. W.	12.15 p. m.	5.10 p. m.	.08	....	....	
	9 0 p. m.	29.72	74	44	29.60	44	43	91	W.	5	.12	....	Stratus	1-2	Cumulus	1-2	W.	.....	.....	....	50	45	

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Meteorological record for the five days ending September 11, 1872.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure pr. sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Saturday, Sept. 7...	1 23 a. m.	29.73	66	43	29.64	43	42	91	W.	6	.18	....	0	0	Cumulus	1-4	W.	.....	.....	.....	.....	.....	
	7 0 a. m.	29.86	60	41	29.72	41	39	82	N. W.	26	3.38	....	0	0	Cumulus	3-4	W.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.86	62	41	29.77	41	39	82	N. W.	29	4.20	....	0	0	Cumulus	4-4	N. W.	9.40 a. m.	.....	.....	.....	.....	
	2 0 p. m.	29.92	63	41	29.83	41	37	61	N.	27	3.64	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.97	65	39	29.87	39	37	81	N.	26	3.38	504	Stratus	1-2	Cumulus	1-2	N.	.....	5.20 p. m.	.....	46	39	Light snow.
	9 0 p. m.	30.08	67	41	29.98	41	36	56	N.	28	3.92	....	0	0	Cumulus	3-4	N.	.....	.....	*	.....	.....	
Sunday, Sept. 8.....	1 23 a. m.	30.15	61	39	30.07	39	35	63	N. W.	17	1.44	....	0	0	Cirrus ..	1-2	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	30.19	66	42	30.09	42	38	66	N. W.	14	.98	....	Stratus	1-2	Cirrus ..	1-2	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.20	63	46	30.11	46	44	84	W.	13	.84	....	0	0	Cirrus ..	4-4	N. W.	10 a. m.	.....	.01	.....	.....	
	2 0 p. m.	30.12	69	46	30.02	46	45	92	S. W.	10	.50	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	30.03	65	46	29.94	46	45	92	S. W.	11	.60	377	Stratus	4-4	.....	.....	.....	.....	.....	.11	46	38	
	9 0 p. m.	30.01	65	46	29.92	46	45	92	W.	11	.60	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
Monday, Sept. 9	1 23 a. m.	30.00	62	46	29.91	46	45	92	W.	8	.32	....	Stratus	4-4	.....	.....	.....	.....	Night...	.01	.....	.....	
	7 0 a. m.	30.05	60	46	29.97	46	46	100	N. W.	10	.50	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	30.13	66	46	30.03	46	45	92	N. E.	8	.32	....	Stratus	4-4	.....	.....	.....	10.15 a. m.	.....	.....	.....	.....	
	2 0 p. m.	30.20	61	45	30.12	45	41	68	N. E.	16	1.28	....	0	0	Cumulus	1-4	N. E.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.28	66	43	30.18	43	40	75	N.	9	.40	276	Stratus	1-2	Cumulus	1-2	N.	.....	12.15 p. m.	.01	46	43	
	9 0 p. m.	30.36	71	38	30.25	38	36	81	N.	5	.12	....	Stratus	1-4	Cumulus	3-4	N.	.....	.....	*	.....	.....	
Tuesday, Sept. 10...	1 23 a. m.	30.35	66	37	30.25	37	35	80	N.	2	.02	....	0	0	Cirrus ..	4-4	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	30.34	61	41	30.26	41	38	73	Calm.	0	.00	....	0	0	Cirrus ..	4-4	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	30.37	62	44	30.28	44	41	75	S. E.	2	.02	....	0	0	Cirrus ..	4-4	N.	8.10 a. m.	.....	.....	.....	.....	
	2 0 p. m.	30.32	61	46	30.24	46	43	76	S. E.	8	.32	....	Stratus	1-2	Cirrus ..	3-4	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	30.29	63	43	30.20	43	41	83	S. E.	10	.50	106	Stratus	1-2	Cirrus ..	1-2	.....	.....	.....	.....	46	37	L't and misty rain.
	9 0 p. m.	30.27	68	42	30.17	42	41	91	S. E.	13	.84	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
Wednesday, Sept. 11	1 23 a. m.	30.16	63	43	30.07	43	42	91	S.	9	.40	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	29.95	58	46	29.83	46	45	92	S.	11	.60	....	Stratus	1-2	Cirrus ..	1-2	S. W.	.....	.....	.01	.....	.....	
	10 23 a. m.	29.87	67	46	29.77	46	45	92	S.	11	.60	....	Nimbus	4-4	.....	.....	.....	.....	.....	.07	.....	.....	
	2 0 p. m.	29.58	70	47	29.48	47	46	92	S.	22	2.42	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29.33	66	47	29.24	47	47	100	S.	18	1.62	284	Stratus	4-4	.....	.....	.....	.....	.....	.77	47	41	

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Day and date of observation.	Time of observation.	Barometer.	Attached.	Exposed.	Corrected to sea-level.	Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Daily range.	Kind.	Amount.	Kind.	Amount.	Direction. (moving from—)	Commenced.	Ended.	Amount of melted snow.	Maximum.	Minimum.	Remarks.
Thursday, Sept. 12.	1 23 a. m.	29.14	64	46	29.05	46	46	100	S. W.	16	1.28		Stratus	4-4						.20			
	7 0 a. m.	28.99	61	46	28.91	46	46	100	W.	21	2.30		Stratus	4-4									
	10 23 a. m.	28.98	69	47	28.88	47	46	93	W.	19	1.80		Stratus	4-4									
	2 0 p. m.	28.98	72	47	28.87	47	46	92	W.	19	1.80		Stratus	4-4						.13			
	5 23 p. m.	29.01	70	46	28.92	46	45	92	N. W.	11	2.20	412	Stratus	4-4									
	9 0 p. m.	29.08	70	46	29.04	46	45	92	N. W.	17	1.44		Stratus	4-4						.05	47	46	
Friday, Sept. 13.	1 23 a. m.	29.16	64	45	29.08	45	44	92	N.	16	1.28		Stratus	4-4									
	7 0 a. m.	29.26	60	44	29.26	44	43	91	N.	17	1.44		Stratus	0						.02			
	10 23 a. m.	29.36	66	45	29.32	45	43	84	N.	15	1.12		Stratus	0	Cumulus	4-4	N.						
	2 0 p. m.	29.41	66	45	29.35	45	42	76	N.	16	1.28		Stratus	0	Cumulus	4-4	N.						
	5 23 p. m.	29.44	64	45	29.39	43	42	91	N.	19	1.60		Stratus	0	Cumulus	1-2	N.						
	9 0 p. m.	29.49	63	43	29.46	43	41	83	N.	19	1.60	341	Stratus	1-4	Cumulus	1-4	N.	5.00 p. m.			46	43	
	1 23 a. m.	29.57	73	43	29.53	42	40	82	N.	19	1.60		Stratus	1-2	Cumulus	1-4	N.						
	7 0 a. m.	29.62	64	42	29.63	42	40	82	N.	21	2.30		Stratus	0	Cumulus	4-4	N.		6.10 p. m.	.01			
	10 23 a. m.	29.70	56	42	29.63	42	40	82	N.	22	2.42		Stratus	0	Cumulus	1-4	N.						
	2 0 p. m.	29.76	65	42	29.67	42	39	74	N.	25	3.12		Stratus	0	Cumulus	1-2	N.						
Saturday, Sept. 14.	5 23 p. m.	29.71	62	42	29.68	43	40	82	N.	25	3.12		Stratus	0	Cumulus	4-4	N.						
	9 0 p. m.	29.84	64	41	29.75	41	38	73	N.	19	1.60		Stratus	0	Cumulus	4-4	N.						
	1 23 a. m.	29.92	69	40	29.82	40	37	73	N.	13	.64	466	Stratus	0	Cumulus	4-4	N.	1.00 p. m.	1.45 p. m.	.01	43	41	
	7 0 a. m.	29.97	63	40	29.89	40	37	73	N.	8	.32		Stratus	0	Cumulus	4-4	N.						
	10 23 a. m.	30.10	65	42	30.01	42	39	74	N.	10	.50		Stratus	0	Cumulus	4-4	N.						
	2 0 p. m.	30.12	67	46	30.02	46	43	76	N.	8	.32		Stratus	3-4	Cirrus	1-4	N. W.						
Sunday, Sept. 15.	5 23 p. m.	30.16	60	47	30.08	47	44	77	W.	3	.04		Stratus	1-2	Cirrus	1-2	N. W.						
	9 0 p. m.	30.25	69	43	30.15	43	41	83	N. W.	1	.01	197	Stratus	4-4									
	1 23 a. m.	30.33	62	41	30.23	41	40	91	N. E.	1	.01		Stratus	3-4	Cirrus	1-4	N. W.	5.10 p. m.	5.12 p. m.		48	40	
	7 0 a. m.	30.37	64	40	30.28	40	39	91	E.	2	.02		Stratus	4-4									
	10 23 a. m.	30.42	59	41	30.34	41	40	91	E.	6	.18		Stratus	4-4									
Monday, Sept. 16.	2 0 p. m.	30.50	69	45	30.39	45	43	84	S. E.	9	.40		Stratus	3-4	Cirrus	1-4	N. W.	8.20 a. m.	9.15 a. m.	.03			
	5 23 p. m.	30.49	68	45	30.39	46	44	84	S. E.	9	.40		Stratus	1-2	Cirrus	1-2							
	9 0 p. m.	30.50	66	45	30.40	45	43	84	S. E.	8	.32	134	Stratus	3-4	Cirrus	1-1					47	41	
							44	92	S. E.	5	.12		Stratus	1-2	Cumulus	1-2	S. W.						

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Meteorological record for the five days ending September 21, 1872.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Tuesday, Sept. 17..	1 23 a. m.	30.50	63	45	30.41	45	44	92	S.	3	.04	....	Stratus..	1-2	Cumulus	1-2	S. W.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.49	59	46	30.41	46	45	92	S.	3	.04	....	Stratus..	1-2	Cumulus	1-2	S. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.54	64	50	30.45	50	47	78	S.	4	.08	....	Stratus..	1-2	Cumulus	1-2	S. W.	Night...	Night...	.01	.....	.....	
	2 00 p. m.	30.54	61	51	30.46	51	49	85	S.	6	.18	....	Stratus..	3-4	Cumulus	1-4	S. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.53	59	47	30.45	47	45	84	S.	6	.18	112	0	0	Cumulus	4-4	S. W.	.....	.....	.....	52	45	
	9 0 p. m.	30.54	63	46	30.45	46	44	84	S.	8	.32	....	0	0	Cumulus	4-4	S.	.....	.....	.....	.....	.....	
Wednesday, Sept. 18	1 23 a. m.	30.54	61	45	30.46	45	44	92	S.	3	.04	....	Stratus..	1-2	Cumulus	1-2	S.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.52	61	45	30.44	45	44	92	S.	3	.04	....	Stratus..	3-4	Cumulus	1-4	S.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.52	62	49	30.43	49	46	78	S.	11	.60	....	Stratus..	3-4	Cirrus ..	1-4	W.	Night...	6.45 a. m.	.02	.....	.....	
	2 0 p. m.	30.51	64	48	30.42	48	44	70	S.	12	.72	....	0	0	Cumulus	4-4	S.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.46	61	44	30.38	44	42	83	S.	18	1.62	293	Haze	0	Cumulus	1-4	S.	.....	.....	.....	49	44	
	9 0 p. m.	30.45	65	43	30.35	43	40	75	S.	24	2.88	....	0	0	Cumulus	4-4	S.	.....	.....	.....	.....	.....	
Thursday, Sept. 19.	1 23 a. m.	30.34	57	43	30.27	43	42	91	S.	21	2.20	....	Stratus..	1-2	Cirrus ..	1-2	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	30.30	52	45	30.24	45	44	92	S.	10	.50	....	Stratus..	1-2	Cirrus ..	1-2	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	30.35	65	50	30.25	50	48	85	S.	9	.40	....	Stratus..	1-2	Cirrus ..	1-2	.....	.....	.....	.....	.....	.....	
	2 0 p. m.	30.33	61	50	30.25	50	48	85	S.	6	.18	....	Stratus..	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	30.32	66	46	30.22	46	45	92	S. E.	8	.32	343	Stratus..	1-2	Cirrus ..	1-4	W.	11.20 a. m.	11.35 a. m.	....	51	43	
	9 0 p. m.	30.33	71	47	30.22	47	46	92	S. E.	6	.18	....	Stratus..	1-2	Cirrus ..	1-2	S. W.	.....	.....	.....	.....	.....	
Friday, Sept. 20....	1 23 a. m.	30.28	64	45	30.19	45	44	92	S. E.	8	.32	....	Stratus..	1-2	Cirrus ..	1-2	S. W.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.20	58	46	30.13	46	45	92	S. E.	14	.98	....	0	0	Cirrus ..	3-4	S. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.17	64	49	30.08	49	48	92	S. E.	17	1.44	....	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	2 0 p. m.	30.11	65	49	30.02	49	48	92	S. E.	21	2.20	....	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	30.05	60	47	29.97	47	46	92	S. E.	16	1.28	309	Fog	4-4	.....	.....	.....	5.05 p. m.	5.20 p. m.	....	49	45	Sprinkle.
	9 0 p. m.	30.04	71	48	29.93	48	48	100	S. E.	21	2.20	....	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
Saturday, Sept. 21.	1 23 a. m.	29.96	65	47	29.87	47	46	92	S. E.	16	1.28	....	Stratus..	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	29.85	59	47	29.77	47	46	92	S. E.	16	1.28	....	Stratus..	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	29.85	69	49	29.75	49	48	92	S. E.	14	.98	....	Stratus..	4-4	.....	.....	.....	Night...	.....	.26	.....	.....	
	2 0 p. m.	29.84	70	49	29.73	49	48	92	S. E.	13	.84	....	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29.76	63	47	29.67	47	46	92	S. E.	14	.98	407	Fog	4-4	.....	.....	.....	.....	.....	.02	.....	.....	
	9 0 p. m.	29.73	70	47	29.63	47	46	92	S. E.	12	.72	....	Stratus..	4-4	.....	.....	.....	.....	.....	.....	49	47	

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Day and date of observation.	Time of observation.	Barometer.	Attached.	Expos'd.	Corrected barometer.	Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction (moving from—)	Commen'd.	Ended.	Amount of rain or melted snow.	Maximum.	Minimum.	Remarks.
Sunday, Sept. 22	1 23 a. m	29.78	64	47	29.60	47	46	92	S.	14	.98	....	0	0	Cumulus	3-4	S.	Night	....	....	....	....	
	7 0 a. m.	29.80	57	39	29.62	47	46	92	S.	17	1.44	....	0	0	Cumulus	3-4	S.	....	....	....	....	....	
	10 23 a. m	29.74	66	50	29.57	50	48	85	S.	15	1.12	....	0	0	Cumulus	1-2	S.	....	....	....	....	....	
	2 0 p. m.	29.73	65	50	29.56	50	46	83	S.	16	1.26	....	0	0	Cumulus	4-4	S.	....	....	....	51	....	
	5 23 p. m.	29.77	63	46	29.60	46	45	92	S.	23	2.42	372	0	0	Cumulus	4-4	S.	....	....	....	....	46	
	9 0 p. m.	29.75	72	47	29.64	47	45	84	S.	21	2.20	....	0	0	Cumulus	4-4	S.	9.35 p. m.	Night	.01	....	....	
	1 23 a. m.	29.70	64	45	29.61	46	45	100	S.	22	2.42	....	0	0	Cumulus	4-4	S.	....	....	....	....	....	
	7 0 a. m.	29.61	57	46	29.54	46	45	92	S. W.	17	1.44	....	0	0	Cumulus	4-4	S. W.	....	....	....	....	....	
	10 23 a. m.	29.53	61	49	29.45	48	46	85	S. W.	14	.98	....	Stratus	1-2	Cumulus	1-4	S. W.	....	....	....	....	....	
Monday, Sept. 23	2 0 p. m.	29.41	61	49	29.30	49	47	83	S. W.	11	.60	....	Stratus	1-4	Cirrus	1-4	S. W.	3.10 p. m.	....	....	....	....	
	5 23 p. m.	29.42	74	45	29.30	45	44	92	S. W.	4	.08	310	Stratus	1-2	Cirrus	1-2	S. W.	....	3.14 p. m.	....	48	45	
	9 0 p. m.	29.37	72	44	29.26	44	43	91	W.	2	.02	....	Stratus	1-2	Cirrus	1-2	S. W.	....	....	....	....	....	
	1 23 a. m.	29.40	66	44	29.31	44	43	91	W.	11	.60	....	0	1-2	Cumulus	4-4	W.	Night	Night	....	....	....	
	7 0 a. m.	29.45	60	44	29.37	44	43	91	W.	13	.84	....	0	1-2	Cirrus	4-4	W.	....	....	.02	....	....	
	10 23 a. m.	29.51	72	46	29.40	46	43	76	W.	13	.84	....	0	0	Cumulus	3-4	W.	....	....	....	....	....	Squalls of rain.
Tuesday, Sept. 24	2 0 p. m.	29.43	66	46	29.32	46	44	84	W.	15	1.12	223	0	0	Cumulus	4-4	N. W.	....	4.50 p. m.	....	46	43	
	5 22 p. m.	29.46	71	43	29.34	43	41	83	N. W.	15	1.12	....	0	0	Cumulus	3-4	N. W.	....	....	....	....	....	
	9 0 p. m.	29.51	71	42	29.39	42	40	82	N. W.	9	.40	....	Stratus	1-4	Cumulus	3-4	N. W.	....	....	....	....	....	
	1 23 a. m.	29.58	66	40	29.50	40	38	82	N. W.	12	.72	....	0	0	Cumulus	3-4	N. W.	Night	....	....	....	....	
	7 0 a. m.	29.60	57	40	29.50	40	37	73	N. W.	13	.84	....	0	0	Cumulus	4-4	N. W.	....	....	....	....	....	
	10 23 a. m.	29.64	60	40	29.57	40	37	73	N. W.	22	2.42	....	0	0	Cumulus	3-4	N. W.	....	....	.06	....	....	Showers of hail and snow.
Wednesday, Sept. 25	2 0 p. m.	29.59	63	41	29.49	41	38	73	N. W.	15	1.12	....	0	0	Cumulus	3-4	W.	....	0	....	....	....	
	5 23 p. m.	29.58	61	39	29.50	39	36	72	N. W.	10	.50	304	0	0	Cirrus	4-4	W.	....	....	.02	43	38	
	9 0 p. m.	29.51	71	42	29.39	42	40	82	N. W.	9	.40	....	Stratus	1-4	Cumulus	3-4	N. W.	....	....	....	....	....	Light snow.
	1 23 a. m.	29.46	64	36	29.36	36	35	90	N.	5	.12	....	0	0	Cirrus	4-4	W.	....	....	....	....	....	Do.
	7 0 a. m.	29.42	56	35	29.32	35	34	89	N. E.	6	.18	....	Nimbus	1-2	Cumulus	1-2	N. E.	....	....	.01	....	....	
	10 23 a. m.	29.44	70	36	29.33	36	34	80	N. E.	9	.40	....	Nimbus	4-4	....	....	....	....	....	....	....	....	
Thursday, Sept. 26	2 0 p. m.	29.31	70	37	29.20	37	34	71	N. E.	8	.32	....	Nimbus	3-4	....	....	....	....	....	.06	....	....	Melted snow.
	5 23 p. m.	29.30	68	37	29.20	37	34	71	N. E.	13	.84	191	Stratus	1-4	Cumulus	1-4	N. E.	....	....	....	....	....	
	9 0 p. m.	29.34	72	36	29.23	36	34	80	N.	14	.98	....	0	0	Cumulus	4-4	N.	4.20 p. m.	....	.01	37	35	Do.
																		....	....	....	....	....	

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Meteorological record for the four days ending September 30, 1872.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Friday, Sept. 27....	1 23 a. m.	29.82	62	34	29.73	34	32	79	N.	11	.60	....	Stratus	1-4	Cumulus	3-4	N.	.....	.....	.....	.....	.....	
	7 0 a. m.	29.84	55	33	29.77	33	32	89	N.	11	.69	....	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.88	69	37	29.76	37	35	80	N.	16	1.28	....	Stratus	1-4	Cumulus	1-2	N.	Night...	.....	.02	.....	.....	Melted snow.
	2 0 p. m.	29.87	70	36	29.76	36	35	90	N.	12	.72	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.86	70	38	29.75	38	35	71	N.	10	.50	351	0	0	Cumulus	4-4	N.	.....	1.35 a. m.	.01	39	33	Do.
	9 0 p. m.	29.87	70	37	29.76	37	34	71	N.	7	.24	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
Saturday, Sept. 28..	1 23 a. m.	29.79	64	40	29.70	40	38	82	W.	4	.08	....	0	0	Cumulus	4-4	W.	Night...	.....	.02	.....	.....	
	7 0 a. m.	29.87	70	37	29.76	37	34	71	N.	7	.24	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.74	67	44	29.64	44	41	75	S.	9	.40	....	Stratus	1-4	Cirrus...	1-2	W.	.....	Night...	.05	.....	.....	
	2 0 p. m.	29.73	64	48	29.64	48	44	70	S.	5	.12	....	Stratus	1-2	Cirrus...	1-2	W.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.73	63	43	29.64	43	41	83	E.	1	.01	148	Stratus	3-4	Cumulus	1-4	N.	.....	.....	.....	48	37	
	9 0 p. m.	29.82	71	39	29.71	39	38	90	N.	10	.50	....	Stratus	1-2	Cirrus...	1-2	W.	.....	.....	.....	.....	.....	
Sunday, Sept. 29 ...	1 23 a. m.	29.85	65	38	29.76	38	37	90	N.	11	.60	....	0	0	Cumulus	4-4	N.	7.10 p. m.	Night...	.02	.....	.....	
	7 0 a. m.	29.91	58	39	29.84	39	37	81	N.	6	.18	....	0	0	Cumu'us	1-2	N.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.96	68	41	29.86	41	39	82	N.	10	.50	....	0	0	Cumulus	1-2	N.	10.05 a. m.	10.08 a. m.	.....	.....	.....	Light squall of rain.
	2 0 p. m.	29.98	64	41	29.89	41	38	73	N.	13	.84	....	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.98	65	40	29.89	40	38	82	N.	9	.40	240	0	0	Cumulus	4-4	N.	.....	.....	.....	43	35	
	9 0 p. m.	30.03	74	39	29.91	39	38	90	N.	6	.18	....	0	0	Cumulus	1-2	N.	.....	.....	.....	.....	.....	
Monday, Sept. 30...	1 23 a. m.	29.94	65	40	29.85	40	39	91	S. W.	13	.84	....	0	0	Cumulus	4-4	S. W.	9.20 p. m.	.....	.02	.....	.....	
	7 0 a. m.	29.81	59	42	29.73	42	41	91	S. W.	16	1.28	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	29.77	71	43	29.66	43	41	83	S. W.	18	1.62	....	Stratus	4-4	.....	.....	.....	.....	.....	.02	.....	.....	
	2 0 p. m.	29.70	72	45	29.59	45	43	84	W.	21	2.20	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.75	71	44	29.64	44	42	83	N. W.	19	1.80	329	Stratus	4-4	.....	.....	.....	.....	.....	.03	45	39	
	9 0 p. m.	29.90	73	40	29.79	40	39	91	N.	16	1.28	....	0	0	Cumulus	1-2	N.	.....	.....	.....	.....	.....	

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Day and date of observation.	Time of observation.	Barometer.	Attached.	Exposed.	Corrected barometer.	Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Tally velocity.	Lower clouds: Kind.	Amount.	Upper clouds: Kind.	Amount.	Direction, (moving from.)	Commen'd.	Ended.	Amount of rain or melted snow.	Maximum.	Minimum.	Remarks.
Tuesday, Oct. 1	1 23 a. m.	29.97	65	36	29.88	36	35	90	N.	12	.72	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	Light rain-squalls.
	7 0 a. m.	30.00	63	36	29.91	36	35	90	N.	9	.40	....	0	0	Cumulus	1-2	N.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.01	66	40	29.91	40	37	73	N.E.	11	.60	....	0	0	Cumulus	1-2	N.E.	.....	.....	.01	.....	.....	Do.
	2 0 p. m.	30.04	71	41	29.93	41	38	73	N.E.	10	.50	....	0	0	Cumulus	4-4	N.E.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.03	67	39	29.92	39	38	72	N.E.	12	.72	296	0	0	Cumulus	4-4	N.E.	.....	.....	.....	.....	.....	
	9 0 p. m.	30.02	72	39	29.92	39	36	72	N.E.	14	.98	....	0	0	Cumulus	3-4	N.E.	.....	.....	.....	44	33	Aurora.
	1 23 a. m.	29.99	68	39	29.89	39	36	72	N.E.	17	1.44	....	0	0	Cumulus	4-4	N.E.	D'g night	D'g night	.01	.....	.....	
	7 0 a. m.	29.89	57	40	29.81	40	39	82	N.E.	21	2.20	....	0	0	Cumulus	4-4	N.E.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.91	68	41	29.81	41	37	65	N.E.	20	2.00	....	0	0	Cumulus	4-4	N.E.	.....	.....	.....	.....	.....	
	2 0 p. m.	29.88	68	42	29.78	42	40	82	N.E.	23	2.64	....	0	0	Cumulus	4-4	N.E.	.....	.....	.....	.....	.....	
Wednesday, Oct. 2	5 23 p. m.	29.89	71	40	29.78	40	38	83	N.E.	20	2.00	426	Stratus	3-4	Cirrus	1-4	W.	11.20 a.m.	.....	.01	.....	.....	Misty rain-dashes at intervals.
	9 0 p. m.	29.90	68	40	29.80	40	39	91	N.E.	19	1.80	....	0	0	Cumulus	4-4	N.E.	.....	.....	.....	43	38	
	1 23 a. m.	29.93	65	38	29.84	38	36	81	N.E.	21	2.50	....	0	0	Cumulus	4-4	N.E.	.....	1.30 a.m.	.00	.....	.....	
	7 0 a. m.	29.98	58	38	29.91	38	35	71	N.E.	22	2.43	....	0	0	Cumulus	3-4	N.E.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.04	67	42	29.94	42	38	66	N.E.	20	2.00	....	0	0	Cumulus	3-4	N.E.	.....	.....	.....	.....	.....	
Thursday, Oct. 3	2 0 p. m.	30.05	67	41	29.93	41	38	73	N.E.	17	1.44	....	0	0	Cirrus	1-4	W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.09	65	39	30.00	39	36	72	N.E.	14	.98	429	0	0	Cirrus	3-4	W.	.....	.....	.....	.....	.....	
	9 0 p. m.	30.15	70	34	30.04	34	32	79	N.	4	.08	....	0	0	0	0	0	.....	.....	.....	42	37	Aurora at 10.30 p.m.
	1 23 a. m.	30.13	69	33	30.04	33	32	89	N.E.	2	.02	....	0	0	Cumulus	1-2	N.E.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.13	64	37	30.04	37	35	80	N.E.	7	.24	....	0	0	Cumulus	3-4	N.E.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.14	70	42	30.03	42	39	66	E.	8	.33	....	0	0	Cumulus	1-2	N.E.	.....	.....	.....	.....	.....	
Friday, Oct. 4	2 0 p. m.	30.09	69	42	29.99	42	39	74	E.	11	.60	....	0	0	Cumulus	4-4	E.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.02	63	39	29.93	39	36	73	S.E.	18	1.62	193	0	0	Cumulus	4-4	S.E.	.....	.....	.....	.....	.....	
	9 0 p. m.	29.97	67	41	29.87	41	38	73	S.E.	21	2.30	....	0	0	0	0	S.E.	.....	.....	.....	42	32	
	1 23 a. m.	29.88	62	42	29.79	42	39	74	S.E.	31	4.80	....	0	0	.....	.....	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	29.76	55	43	29.69	43	41	88	S.E.	26	3.38	....	Stratus	1-2	Cirrus	1-2	S.	.....	.....	.....	.....	.....	
Saturday, Oct. 5	10 23 a. m.	29.75	70	44	29.65	44	41	75	S.E.	24	2.88	....	Stratus	3-4	Cirrus	1-4	S.	.....	.....	.....	.....	.....	
	2 0 p. m.	29.67	62	44	29.58	44	42	83	S.E.	25	3.92	570	0	0	Cumulus	4-4	S.E.	.....	.....	.00	.....	.....	
	5 23 p. m.	29.61	60	43	29.53	43	41	83	S.E.	25	3.12	....	Stratus	1-2	Cirrus	1-2	S.	.....	.....	.....	.....	.....	
	9 0 p. m.	29.58	64	43	29.49	43	41	83	S.E.	29	4.90	....	Stratus	4-4	.....	.....	.....	4.10 p.m.	4.14 p.m.	.....	45	39	

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Meteorological record for the five days ending October 10, 1872.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Sunday, Oct. 6	1 23 a. m.	29.54	61	43	29.46	43	41	83	S. E.	32	5.12	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	29.52	65	44	29.43	44	42	83	S. E.	22	2.42	....	Stratus	1-2	Cirrus	1-2	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	29.52	65	44	29.43	44	42	83	S. E.	16	1.28	....	Stratus	1-2	Cirrus	1-2	.....	7.10 a. m.	.....	.05	.....	.....	
	2 0 p. m.	29.50	62	43	29.42	43	41	83	S. E.	15	1.12	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29.51	66	41	29.42	41	40	91	E.	4	.06	550	Stratus	4-4	.....	.....	.....	.....	.....	.13	.....	.....	
	9 0 p. m.	29.50	67	41	29.40	41	40	91	E.	6	.18	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	43	41	
Monday, Oct. 7	1 23 a. m.	29.45	62	42	29.37	42	41	91	N. E.	9	.40	....	Stratus	4-4	.....	.....	.....	.....	.....	.14	.....	.....	
	7 0 a. m.	29.28	56	42	29.21	42	41	91	N. E.	18	1.62	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	29.28	62	44	29.20	44	43	91	N. E.	19	1.80	....	Stratus	4-4	.....	.....	.....	.....	.....	.04	.....	.....	
	2 0 p. m.	29.25	65	45	29.16	45	44	92	N. E.	22	2.42	....	Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29.18	65	43	29.09	43	42	91	N. E.	16	1.28	326	Nimbus	1-4	Cumulus	3-4	N. E.	.....	.....	.03	.....	.....	
	9 0 p. m.	29.09	68	42	28.99	42	41	91	N. E.	9	.40	....	0	0	Cumulus	1-2	N. E.	.....	.....	.....	45	41	
Tuesday, Oct. 8	1 23 a. m.	28.98	62	42	28.90	42	41	91	E.	18	1.62	....	Stratus	4-4	.....	.....	.....	.....	.....	.03	.....	.....	
	7 0 a. m.	28.80	55	43	28.74	43	41	83	E.	23	2.64	....	Stratus	1-2	Cumulus	1-2	E.	.....	.....	.....	.....	.....	
	10 23 a. m.	28.74	62	42	28.66	42	41	91	E.	29	4.20	....	Stratus	4-4	.....	.....	.....	.....	.....	.06	.....	.....	
	2 0 p. m.	28.64	67	42	28.55	42	41	91	E.	29	4.20	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	28.61	69	42	28.51	42	41	91	E.	26	3.38	477	Stratus	4-4	.....	.....	.....	.....	.....	.05	.....	.....	
	9 0 p. m.	28.63	70	42	28.53	42	41	91	E.	27	3.64	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	43	42	
Wednesday, Oct. 9	1 23 a. m.	28.65	63	42	28.57	42	41	91	E.	20	2.00	....	Stratus	4-4	.....	.....	.....	.....	.....	.01	.....	.....	
	7 0 a. m.	28.71	57	41	28.64	41	40	91	N. E.	9	.40	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	28.75	62	41	28.67	41	40	91	N. E.	12	.72	....	Stratus	4 4	.....	.....	.....	.....	.....	.02	.....	.....	
	2 0 p. m.	28.81	66	42	28.72	42	41	91	N. E.	18	1.62	....	Stratus	1-2	Cirrus	1-2	W.	.....	.....	.....	.....	.....	
	5 23 p. m.	28.87	65	40	28.78	40	38	82	N. E.	17	1.44	455	0	0	Cumulus	4-4	N. E.	.....	.....	.....	.....	.....	
	9 0 p. m.	28.96	76	40	28.84	40	38	82	N.	6	.18	....	Stratus	1-2	Cumulus	1-2	N.	.....	.....	.....	43	40	
Thursday, Oct. 10	1 23 a. m.	28.97	69	39	28.87	39	38	90	N.	11	.60	....	0	0	Cumulus	4-4	N.	.....	.....	.01	.....	.....	
	7 0 a. m.	29.03	59	39	28.96	39	37	81	N.	12	.72	....	Stratus	1-4	Cumulus	1-2	N.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.07	62	40	28.99	40	39	91	N. W.	12	.72	....	Nimbus	1-4	Cumulus	3-4	N. W.	.....	.....	.01	.....	.....	
	2 0 p. m.	29.09	67	43	28.99	43	42	91	N. W.	9	.40	....	0	0	Cumulus	3-4	N. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.12	70	41	29.02	41	40	91	W.	9	.40	227	0	0	Cumulus	3-4	W.	.....	4.30 p. m.	.01	.....	.....	
	9 0 p. m.	29.18	73	39	29.07	39	38	90	W.	6	.18	....	0	0	Cumulus	4-4	W.	.....	.....	.....	44	38	

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Day and date of observation.	Time of observation.	Barometer.	Attached.	Exposed.	Corrected barometer.	Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction (moving from—)	Commenced. D'g night	Ended. D'g night	Amount of rain or melted snow.	Maximum.	Minimum.	Remarks.
Friday, Oct. 11	1 23 a. m.	28. 21	67	39	28. 11	39	38	90	N.	8	.33	....	Nimbus	1-4	Cumulus	3-4	N.			.02	....	....	Dashes of misty rain.
	7 0 a. m.	28. 29	61	42	28. 21	42	41	91	N.	4	.08	....	0	0	Cumulus	4-4	N.			....	....	....	Do.
	10 23 a. m.	28. 34	67	43	28. 24	43	41	91	N. W.	9	.40	....	0	0	Cumulus	3-4	N. W.			....	....	....	
	2 0 p. m.	28. 35	67	41	28. 25	41	40	91	N. W.	10	.50	140	Nimbus	1-4	Cumulus	4-4	N. W.			....	....	....	
	5 23 p. m.	28. 36	70	40	28. 26	40	39	90	N. W.	9	.40	....	Stratus	1-4	Cumulus	3-4	N. W.			....	....	....	
	9 0 p. m.	28. 37	71	39	28. 26	40	39	90	N. W.	4	.08	....	Stratus	1-4	Cumulus	3-4	N. W.			....	42	39	
	1 23 a. m.	28. 34	65	37	28. 24	39	37	90	N. E.	1	.01	....	Stratus	4-4	Cirrus	3-4	S. E.			....	....	....	
	7 0 a. m.	28. 21	63	39	28. 21	39	36	90	S. E.	4	.08	....	Nimbus	4-4	Cirrus	....	S. E.	10.05 a. m.	10.30 a. m.	.01	....	....	Fine misty rain.
	10 23 a. m.	28. 26	66	41	28. 17	41	40	91	E.	9	.40	....	Stratus	1-4	Cirrus	....	S. E.			....	....	....	
	2 0 p. m.	28. 15	67	44	28. 11	44	42	83	E.	9	.40	....	Stratus	1-4	Cirrus	3-4	S. E.			....	....	....	
Saturday, Oct. 12	5 23 p. m.	28. 15	73	41	28. 04	41	39	82	E.	14	.98	139	Stratus	1-4	Cirrus	3-4	E.			....	45	37	Cir.-Cumulus.
	9 0 p. m.	29. 05	72	40	28. 04	40	38	91	N. E.	17	1.44	....	0	0	Cirrus	4-4	N.			....	....	....	
	1 23 a. m.	28. 97	64	40	28. 02	40	39	91	N.	32	5.12	....	0	0	Cumulus	4-4	N.			....	....	....	
	7 0 a. m.	28. 96	56	40	28. 03	40	40	100	N.	36	6.48	....	Stratus	4-4	....	....	....			....	....	....	
	10 23 a. m.	28. 92	65	41	28. 03	41	40	91	N.	35	6.12	....	Stratus	4-4	....	....	....	5.40 a. m.		.01	....	....	
	2 0 p. m.	28. 86	63	41	28. 00	41	40	91	N.	28	3.92	....	0	0	Cumulus	4-4	N.			.02	....	....	
Sunday, Oct. 13	5 23 p. m.	28. 86	63	40	28. 00	40	39	91	N.	29	4.20	661	0	0	Cumulus	4-4	N.			.02	42	40	
	9 0 p. m.	28. 98	68	40	28. 08	40	39	91	N.	28	3.92	....	Nimbus	4-4	Cumulus	1-2	N.			....	....	....	
	1 23 a. m.	28. 18	68	40	28. 09	40	39	91	N.	26	3.38	....	Nimbus	1-2	Cumulus	1-2	N.			.18	....	....	
	7 0 a. m.	28. 43	56	34	28. 36	36	33	89	N. W.	18	1. 62	....	Stratus	1-4	Cumulus	1-2	N. W.			....	....	....	Squalls of hail and snow.
	10 23 a. m.	28. 54	71	36	28. 43	36	35	90	N. W.	16	1. 28	....	Stratus	1-4	Cumulus	1-2	N. W.			.02	....	....	Melted snow.
Monday, Oct. 14	2 0 p. m.	28. 59	71	36	28. 48	36	34	90	N.	18	1. 62	....	Nimbus	1-4	Cumulus	1-4	N.			....	....	....	Squalls of hail and snow.
	5 23 p. m.	28. 61	66	32	28. 51	32	31	89	N.	14	.98	495	Nimbus	3-4	Cumulus	1-2	N.			.01	....	....	Melted snow.
	9 0 p. m.	28. 71	72	30	28. 60	30	28	78	N.	4	.08	....	Stratus	1-4	Cumulus	1-4	N.			....	40	33	Aurora.
	1 23 a. m.	28. 74	61	29	28. 66	29	26	89	N.	12	.72	....	Nimbus	3-4	Cumulus	1-2	N.			.02	....	....	Melted snow.
	7 0 a. m.	28. 80	56	28	28. 73	28	27	88	N.	7	.24	....	Stratus	1-4	Cumulus	1-2	N.			....	....	....	
	10 23 a. m.	28. 75	31	31	28. 80	31	28	78	N.	14	.98	....	0	0	Cumulus	3-4	N.			.01	....	....	
Tuesday, Oct. 15	2 0 p. m.	28. 84	62	31	28. 80	31	28	68	N.	20	2.00	....	Nimbus	3-4	Cumulus	1-4	N.			....	....	....	
	5 23 p. m.	28. 92	68	28	28. 82	28	26	76	N.	15	1.12	294	Nimbus	1-4	Cumulus	1-2	N.			.03	....	....	
	9 0 p. m.	30. 00	69	27	29. 90	27	26	88	N.	9	3. 38	....	Nimbus	4-4	....	....	....			....	31	28	Furious snow.

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Meteorological record for the five days ending October 20, 1872.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Wednesday, Oct. 16.	1 23 a. m.	30.02	63	27	29.93	27	25	76	N.	15	1.12	....	Nimbus.	1-4	Cumulus	1-4	N.	.....	.....	.07	....	....	Melted snow.
	7 0 a. m.	30.06	62	27	29.97	27	25	76	N. W.	12	.72	....	Nimbus.	1-4	Cumulus	1-4	N. W.	.....	.....	.....	....	....	Squalls of hail and snow.
	10 23 a. m.	30.06	64	32	29.97	32	30	79	N. W.	11	.60	....	0	0	Cumulus	1-4	N. W.	.....	10.05 a. m.	.01	....	....	
	2 0 p. m.	30.04	71	35	29.93	35	34	89	W.	7	.24	....	Stratus.	1-4	Cirrus..	3-4	W.	.....	.....	.....	....	....	
	5 23 p. m.	29.92	69	34	29.82	34	33	89	S.	15	1.12	314	Nimbus.	4-4	.....	.....	.....	5.00 p. m.	.....	.01	35	27	
	9 0 p. m.	29.75	68	37	29.65	37	36	90	S.	23	2.64	....	Stratus.	4-4	.....	.....	.....	.....	.....	.....	....	....	
Thursday, Oct. 17...	1 23 a. m.	29.51	60	40	29.43	40	39	91	S. W.	17	1.44	....	Stratus.	4-4	.....	.....	.....	.....	.....	.26	....	....	
	7 0 a. m.	29.09	64	42	29.00	42	41	91	S. W.	19	1.80	....	Stratus.	4-4	.....	.....	.....	.....	.....	.....	....	....	
	10 23 a. m.	29.06	60	43	28.98	43	41	83	W.	18	1.62	....	Stratus.	4-4	.....	.....	.....	.....	.....	.16	....	....	
	2 0 p. m.	29.20	64	42	29.11	42	41	91	W.	31	4.80	....	Stratus.	4-4	.....	.....	.....	.....	.....	.....	....	....	
	5 23 p. m.	29.37	71	40	29.26	40	39	91	W.	42	8.82	531	Stratus.	4-4	.....	.....	.....	.....	.....	.17	43	34	
	9 0 p. m.	29.51	72	40	29.40	40	39	91	W.	36	6.48	....	Stratus.	1-2	Cirrus..	1-2	W.	.....	.....	.....	....	....	
Friday, Oct. 18.....	1 23 a. m.	29.57	63	39	29.48	39	38	90	S. W.	19	1.80	....	Stratus.	1-2	Cumulus	1-4	S. W.	.....	6.20 p. m.	.03	....	....	
	7 0 a. m.	29.66	65	39	29.57	39	37	81	S. W.	18	1.62	....	0	0	Cumulus	1-4	S. W.	.....	.....	.....	....	....	
	10 23 a. m.	29.64	65	41	29.55	41	39	82	S. W.	12	.72	....	0	0	Cirrus..	3-4	W.	.....	.....	.....	....	....	
	2 0 p. m.	29.62	65	40	29.53	40	39	91	S.	13	.84	....	Nimbus.	4-4	.....	.....	.....	.....	.....	.....	....	....	
	5 23 p. m.	29.52	70	42	29.42	42	41	91	S.	13	.84	403	Stratus.	4-4	.....	.....	.....	11.35 a. m.	.....	.13	43	39	
	9 0 p. m.	29.45	67	42	29.35	42	42	100	S.	16	1.28	....	Stratus.	4-4	.....	.....	.....	.....	.....	.....	....	....	
Saturday, Oct. 19...	1 23 a. m.	29.36	62	41	29.28	41	40	91	S.	7	.24	....	Stratus.	4-4	.....	.....	.....	.....	.....	.21	....	....	
	7 0 a. m.	29.22	62	41	29.14	41	41	100	S.	1	.01	....	Stratus.	4-4	.....	.....	.....	.....	.....	.....	....	....	
	10 23 a. m.	29.18	67	41	29.08	41	41	100	N.	8	.32	....	Stratus.	4-4	.....	.....	.....	.....	.....	.31	....	....	
	2 0 p. m.	29.17	63	36	29.09	36	35	90	N.	32	5.12	....	Stratus.	4-4	.....	.....	.....	.....	.....	.....	....	....	
	5 23 p. m.	29.33	66	31	29.24	31	30	89	N.	41	8.40	360	Stratus.	4-4	.....	.....	.....	.....	5.15 p. m.	.06	42	31	Melted snow.
	9 0 p. m.	29.49	67	29	29.39	29	27	77	N.	28	3.92	....	0	0	Cumulus	4-4	N.	.....	.....	.....	....	....	
Sunday, Oct. 20.....	1 23 a. m.	29.56	61	28	29.48	28	26	76	N.	24	2.88	....	0	0	Cumulus	4-4	N.	Night..	.....	.....	....	....	Squalls of hail and snow.
	7 0 a. m.	29.72	59	27	29.64	27	25	76	N.	21	2.20	....	0	0	Cumulus	4-4	N.	.....	.....	.....	....	....	Do.
	10 23 a. m.	29.78	57	29	29.71	29	26	66	N.	19	1.80	....	Nimbus.	1-4	Cumulus	3-4	N.	.....	.....	.01	....	....	Do.
	2 0 p. m.	29.67	66	29	29.77	29	27	77	N. W.	19	1.80	....	0	0	Cumulus	1-2	N. W.	.....	.....	.....	....	....	Do.
	5 23 p. m.	29.90	64	29	29.81	29	27	77	N. W.	17	1.44	543	0	0	Cumulus	3-4	N. W.	.....	.....	.02	31	27	Do.
	9 0 p. m.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	Pressure per sq. ft.	Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	RAIN OR SNOW. Amount of rain or melted snow.	TEMPER. Maximum.	TEMPER. Minimum.	Remarks.
Monday, October 21	1 23 a. m.	29. 88	62	33	33	32	89	W.	14	.98	....	Nimbus	4-4	.....	.....	.....	.....	.....	.01	.....	.....	Squalls of hail and snow.
	7 0 a. m.	29. 35	66	35	35	34	89	W.	20	2.00	....	Nimbus	1-4	Cumulus	1-2	W.	.....	.....	.....	.....	.....	Do.
	10 23 a. m.	29. 92	63	35	35	34	89	W.	21	2.20	....	Stratus	1-4	Cumulus	1-2	W.	.....	.....	.....	.....	.....	Do.
	2 0 p. m.	29. 77	64	36	36	35	90	W.	21	2.30	....	Nimbus	1-2	Cumulus	1-2	W.	.....	.....	.....	.....	.....	Do.
	5 23 p. m.	29. 64	65	35	35	35	90	W.	17	1.44	417	0	0	Cumulus	1-2	W.	.....	2.25 p. m.	.03	37	29	
	9 0 p. m.	29. 65	65	36	36	33	70	W.	16	1.29	0	0	0	Cumulus	1-2	W.	.....	.....	.....	.....	.....	
	1 23 a. m.	29. 55	59	34	32	32	79	W.	16	1.24	0	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	7 0 a. m.	29. 41	54	27	27	25	76	N.	21	4.60	0	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	.....	
Tuesday, October 22	10 23 a. m.	29. 43	62	29	29	27	77	N.	22	2.42	0	Nimbus	1-4	Cumulus	1-4	N.	Night.	.....	.02	.....	.....	Do.
	2 0 p. m.	29. 42	63	31	31	28	66	N.	31	4.50	0	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	29. 43	62	29	29	27	77	N.	19	1.60	477	0	0	Cumulus	4-4	N.	.....	1.35 p. m.	.00	36	27	
	9 0 p. m.	29. 51	69	31	31	29	78	N.	13	.84	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	1 23 a. m.	29. 56	59	32	32	31	89	N. W.	26	3.38	....	Stratus	1-4	Cumulus	3-4	N. W.	10.40 p. m.	.....	.02	.....	.....	Do.
	7 0 a. m.	29. 65	61	32	32	31	89	N. W.	24	2.88	....	Stratus	1-4	Cumulus	3-4	N. W.	.....	.....	.....	.....	.....	Do.
Wednesday, Oct. 23	10 23 a. m.	29. 70	61	33	33	30	80	N. W.	26	2. 36	....	Nimbus	1-2	Cumulus	1-2	N. W.	.....	.....	.04	.....	.....	Furious squalls hail and snow.
	2 0 p. m.	29. 72	60	33	33	32	89	N. W.	24	2.88	....	Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29. 77	62	32	32	31	89	N. W.	28	3.92	.540	Nimbus	4-4	.....	.....	.....	.....	.....	.14	34	29	
	9 0 p. m.	29. 67	67	33	33	32	89	N.	23	2.64	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	1 23 a. m.	29. 96	63	34	34	32	79	N. W.	18	1.62	....	Stratus	1-2	Cumulus	1-2	N. W.	.....	6.10 p. m.	.01	.....	.....	
Thursday, Oct. 24	7 0 a. m.	29. 96	63	34	34	32	79	N. W.	6	0	....	Stratus	3-4	Cirrus	1-2	W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30. 03	69	36	34	32	80	0	0	0	....	Stratus	1-2	Cirrus	1-2	W.	10.10 a. m.	.....	.00	.....	.....	
	2 0 p. m.	30. 02	62	36	35	35	90	N. W.	1	.01	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	5 23 p. m.	30. 06	68	36	36	36	81	N. W.	4	.05	300	0	0	0	0	0	.....	.....	.....	.....	.....	
	9 0 p. m.	30. 06	68	39	39	36	90	W.	3	.04	....	0	0	Cirrus	4-4	0	.....	12.25 p. m.	.01	.....	.....	Melted snow.
	1 23 a. m.	30. 01	59	38	38	37	90	S.	7	.24	....	Stratus	3-4	Cirrus	1-4	W.	Night.	.....	.....	.....	.....	
	7 0 a. m.	29. 90	53	38	38	37	90	S.	9	.40	....	Stratus	1-2	Cumulus	1-2	S.	.....	.....	.01	.....	.....	
Friday, October 25	10 23 a. m.	29. 90	62	41	41	39	82	W.	11	.60	....	Stratus	1-2	Cirrus	1-2	W.	.....	.....	.....	.....	.....	
	2 0 p. m.	29. 86	66	39	39	38	90	W.	14	.98	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29. 88	65	37	37	36	90	W.	7	.24	203	0	0	Cumulus	1-4	W.	.....	4.10 p. m.	.02	42	37	Rain & snow-flakes.
	9 0 p. m.	29. 90	66	36	36	35	90	S. W.	1	.01	....	0	0	0	0	0	.....	.....	.....	.....	.....	

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Meteorological record for the five days ending October 30, 1872.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM Dry bulb.	HYGROM Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS Kind.	LOWER CLOUDS Amount.	UPPER CLOUDS. Kind.	Amount.	Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
	1 23 a. m.	29.88	59	35	29.80	35	34	89	S. W.	4	.08	....	0	0	Cumulus	1-4	S. W.						
	7 0 a. m.	29.88	61	36	29.80	36	34	80	S. W.	10	.50	....	0	0	Cumulus	1-4	S. W.						
Saturday, Oct. 26...	10 23 a. m.	29.89	60	38	29.81	38	36	81	S. W.	12	.72	....	0	0	0	0	0						
	2 0 p. m.	29.91	63	38	29.82	38	36	81	S. W.	11	.60	....	0	0	0	0	0						
	5 23 p. m.	29.91	68	36	29.81	36	34	80	W.	2	.02	187	Stratus	1-4	Cirrus	1-4	W.				38	34	
	9 0 p. m.	29.95	70	31	29.84	31	30	89	0	0	0	....	Stratus	1-4	Cirrus	1-4	W.						
	1 23 a. m.	29.92	60	32	29.84	32	31	89	S. W.	1	.01	....	Stratus	1-4	Cumulus	1-2	N.						
	7 0 a. m.	29.91	54	33	29.85	33	32	89	S. W.	4	.08	....	Nimbus	4-4									
Sunday, Oct. 27....	10 23 a. m	29.95	68	33	29.85	33	32	89	N.	1	.01	....	Nimbus	4 4				Night.	10.30 a. m.	.15			Melted snow.
	2 0 p. m.	29.92	59	35	29.84	35	34	89	N.	1	.01	....	0	0	Cumulus	1-4	N.						
	5 23 p. m.	29.92	61	31	29.84	31	30	89	N.	2	.02	32	0	0	Cumulus	1-4	N.				36	31	
	9 0 p. m.	29.98	72	31	29.87	31	30	89	N.	4	.08	....	0	0	0	0	0						
	1 23 a. m.	29.90	61	31	29.82	31	30	89	N.	22	2.42	....	0	0	Cumulus	4-4	N.						
	7 0 a. m.	29.82	61	31	29.74	31	29	78	N.	8	.32	....	0	0	Cumulus	4-4	N.						
	10 23 a. m.	29.79	62	32	29.70	32	31	89	N.	16	1.28	....	0	0	Cumulus	4-4	N.	8.00 a. m.		.00			Very light showers of hail.
Monday, Oct. 28....																							
	2 0 p. m.	29.76	60	32	29.68	32	30	79	N.	18	1.62	....	0	0	Cumulus	4-4	N.						
	5 23 p. m.	29.77	68	30	29.67	30	27	67	N.	29	4.20	368	0	0	Cumulus	4-4	N.		4.30 p. m.	.00	32	30	
	9 0 p. m.	29.75	67	29	29.65	29	27	77	N.	26	3.38	....	0	0	Cumulus	4-4	N.						
	1 23 a. m.	29.72	57	27	29.65	27	25	76	N.	25	3.12	....	0	0	Cumulus	4-4	N.						
	7 0 a. m.	29.70	49	25	29.65	25	23	74	N.	25	3.12	....	0	0	Cumulus	4-4	N.						
	10 23 a. m.	29.72	55	25	29.65	25	23	74	N.	24	2.88	....	Nimbus	1-4	Cumulus	3-4	N.	Night.		.01			Squalls of hail and snow.
Tuesday, Oct. 29 ...																							
	2 0 p. m.	29.72	64	25	29.63	25	23	74	N.	25	3.12	....	Nimbus	1-4	Cumulus	3-4	N.						Do.
	5 23 p. m.	29.73	60	24	29.65	24	22	73	N.	25	3.12	600	0	0	Cumulus	4 4	N.			.01	30	24	Do.
	9 0 p. m.	29.76	64	22	29.67	22	20	72	N.	26	3.38	....	Nimbus	4-4									Do.
	1 23 a. m.	29.74	56	22	29.67	22	20	72	N.	27	3.64	....	0	0	Cumulus	4-4	N.			.04			Do.
	7 0 a. m.	29.74	55	24	29.67	24	22	73	N.	23	2.64	....	Nimbus	1-4	Cumulus	3-4	N.						Do.
	10 23 a. m.	29.78	62	23	29.69	23	22	86	N.	25	3.12	....	Nimbus	4-4						.04			Do.
Wednesday, Oct. 30.	2 0 p. m.	29.82	62	24	29.73	24	23	86	N. W.	29	4.20	....	Stratus	1-4	Cumulus	1-2	W.						Do.
	5 23 p. m.	29.85	58	25	29.78	25	23	74	N. W.	27	3.64	581	Nimbus	1-4	Cumulus	3-4	N. W.			.06	25	22	Furious squalls of hail and

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Day and date of observation	Time of observation.	Barometer.	Attached.	Exposed.	Corrected barometer.	Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from—)	Commenced.	Ended.	Amount of rain or melted snow.	Maximum.	Minimum.	Remarks.
	1 23 a. m.	29.86	59	25	29.78	25	23	74	N. W.	16	1.28	...	0	0	.....	4-4	.....	.....	.....	.03	.....	.....	Squalls of hail and snow.
	7 0 a. m.	29.80	49	24	29.75	24	23	86	N. W.	19	.72	...	Nimbus	1-4	Cumulus	3-4	W.	.....	.....	.00	.....	.....	Do.
	10 23 a. m.	29.80	51	25	29.74	25	24	87	N. W.	8	.32	...	Nimbus	1-4	Cumulus	3-4	W.	.....	.....	.....	.....	.....	Do.
Thursday, Oct. 31...	2 0 p. m.	29.66	46	24	29.62	24	23	86	N.	9	.40	339	Stratus	1-4	Cumulus	1-2	W.	.....	3.35 p. m.	.01	26	23	Do.
	5 23 p. m.	29.60	44	23	29.56	23	23	86	N. E.	5	.12	...	Stratus	1-4	Cumulus	3-4	N. E.	.....	.....	.....	.....	.....	Do.
	9 0 p. m.	29.59	57	23	29.45	23	23	86	N. E.	1	.01	...	Stratus	1-4	Cumulus	3-4	N. E.	.....	.....	.....	.....	.....	Do.
	1 23 a. m.	29.35	46	24	29.31	26	23	86	N. E.	3	.04	...	0	0	.....	4-4	.....	.....	.....	.....	.....	.....	Do.
	7 0 a. m.	29.14	40	26	29.11	26	24	89	N. E.	25	3.12	...	Stratus	4-4	.....	.....	.....	.....	.....	.00	.....	.....	Fine snow, lig't.
	10 23 a. m.	29.06	42	30	29.03	30	29	89	N. E.	24	2.88	...	Stratus	4-4	.....	.....	.....	Night.	.....	.....	.....	.....	Do.
Friday, Nov. 1.....	2 0 p. m.	29.02	41	31	28.99	31	30	89	N. E.	24	2.88	...	Stratus	4-4	.....	.....	.....	.....	.....	.01	31	23	Melted snow.
	5 23 p. m.	29.01	51	31	28.96	31	30	89	N. E.	27	3.04	396	Stratus	4-4	.....	.....	.....	.....	Night.	.....	.....	.....	.....
	9 0 p. m.	29.01	53	30	28.95	30	29	89	N. E.	28	3.02	...	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1 23 a. m.	29.06	48	30	29.01	34	33	89	N. E.	29	3.20	...	0	0	.....	4-4	.....	.....	.....	.....	.....	.....	.....
	7 0 a. m.	29.17	44	32	29.13	33	30	89	N. E.	26	3.33	...	0	0	Cumulus	4-4	N. E.	.....	.....	.....	.....	.....	.....
	10 23 a. m.	29.26	50	31	29.21	31	29	78	N. E.	21	2.20	...	0	0	Cumulus	4-4	N. E.	.....	.....	.....	.....	.....	.....
	2 0 p. m.	29.36	49	30	29.31	30	28	78	N. E.	14	.96	...	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	.....	.....
Saturday, Nov. 2...	5 23 p. m.	29.42	49	29	29.37	29	28	76	N.	13	.84	572	0	0	Cumulus	1-2	N.	.....	.....	.....	.....	.....	.....
	9 0 p. m.	29.52	61	28	29.44	28	26	76	N.	9	.40	...	0	0	Cumulus	4-4	N.	.....	.....	.....	34	28	.....
	1 23 a. m.	29.57	56	28	29.50	28	26	76	N.	12	.73	...	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	.....	.....
	7 0 a. m.	29.67	44	28	29.63	28	26	76	N.	14	.98	...	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	.....
	10 23 a. m.	29.72	50	27	29.64	27	25	76	N.	11	.60	...	Nimbus	1-4	Cumulus	3-4	N.	9.55 a. m.	.....	.00	.....	.....	Light squalls of hail and snow.
	2 0 p. m.	29.82	69	25	29.72	25	23	74	N.	17	1.44	...	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	.....	.....
	5 23 p. m.	29.88	69	24	29.78	24	23	73	N.	21	2.20	432	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	.....
	9 0 p. m.	29.91	62	23	29.82	23	21	73	N.	22	2.42	...	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	.....	.....
	1 23 a. m.	29.94	57	23	29.87	23	21	73	N.	22	2.43	...	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	.....
	7 0 a. m.	29.98	42	25	29.93	25	23	74	N.	17	1 44	...	Stratus	1-2	Cumulus	1-2	N. W.	.....	3.30 p. m.	.01	29	24	.....
	10 23 a. m.	30.01	62	27	29.92	27	25	88	N. W.	3	.04	...	Haze...	4-4	Cirrus ...	4-4	N. W.	.....	.....	.....	.....	.....	.....
	2 0 p. m.	29.84	57	27	29.84	27	26	88	E.	6	.18	...	Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Cirro-cumulus.
Monday, Nov. 4.....	5 23 p. m.	30.01	55	25	29.94	25	23	74	N.	28	3.92	403	Nimbus	3-4	Cumulus	1-4	N.	10.40 a. m.	.....	.24	27	23	Heavy snow.
	9 0 p. m.	30.10	59	25	30.02	25	23	74	N.	27	3 64	...	Stratus	1-2	Cumulus	1-2	N.	.....	.....	.....	.....	.....	Aurora.

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Meteorological record for the five days ending November 9, 1872

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from —)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Tuesday, Nov. 5	1 23 a. m.	30.08	52	26	30.02	26	25	87	N.E.	7	.24	....	Stratus..	3-4	0	0	0	.....	6.15 p. m.	.01	.....	.....	Melted snow.
	7 0 a. m.	30.01	55	29	29.94	29	28	88	S.E.	13	.84	....	Stratus..	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Light snow.
	10 23 a. m.	29.98	56	33	29.91	33	32	89	S.E.	14	.98	....	Stratus..	4-4	.....	.....	.....	5.00 a. m.	.....	.03	.....	.....	
	2 0 p. m.	29.94	59	36	29.86	36	35	90	S.W.	4	.08	....	Stratus..	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Light rain.
	5 23 p. m.	30.00	65	37	29.91	37	36	90	W.	12	.72	323	Stratus..	4-4	.....	.....	.....	.....	2.20 p. m.	.02	37	25	Melted snow.
	9 0 p. m.	30.03	62	37	29.94	37	36	90	S.	28	3.92	....	Stratus..	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
Wednesday, Nov. 6.	1 23 a. m.	30.02	52	37	29.96	37	36	90	S.	9	.40	...	Stratus..	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	30.06	54	37	30.00	37	36	90	S.	13	.84	...	Stratus..	1-2	Cirrus ..	1-2	S. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.09	66	38	29.99	38	37	90	S	13	.84	....	Stratus..	1-2	Cirrus ..	1-2	S. W.	.....	.....	.....	.....	.....	
	2 0 p. m.	30.04	65	38	29.95	38	37	90	S.	20	2.00	....	Nimbus ..	1-2	Cumulus	1-2	S.	.....	.....	.....	.....	.....	Light dashes of rain.
	5 23 p. m.	29.99	62	37	29.90	37	36	90	S.	23	2.64	285	Stratus..	1-2	Cumulus	1-2	S.	1.50 p. m.	5.10 p. m.	.01	38	37	
	9 0 p. m.	29.92	60	37	29.84	37	36	90	S.	28	3.92	...	Stratus..	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
Thursday, Nov. 7 ..	1 23 a. m.	29.80	54	39	29.74	39	38	90	S.	31	4.80	....	Stratus..	4-4	.....	.....	.....	Night...	.....	.02	.....	.....	
	7 0 a. m.	29.72	46	40	29.68	40	39	91	S.	25	3.12	....	Stratus..	1-2	Cirrus ..	1-2	S.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.76	55	40	29.69	40	39	91	S.	25	3.12	....	Stratus..	4-4	.....	.....	.....	.....	Night...	.01	.....	.....	
	2 0 p. m.	29.79	49	40	29.74	40	39	91	S.	23	2.64	...	Stratus..	1-2	Cirrus ..	1-2	S.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.77	45	38	29.72	38	37	90	S.	21	2.20	687	Stratus..	1-4	Cirrus ..	3-4	S.	.....	.....	.....	40	37	
	9 0 p. m.	29.8	49	38	29.75	38	37	90	S.	20	2.00	....	0	0	Cirrus ..	1-2	S.	.....	.....	.....	.....	.....	
Friday, Nov. 8.....	1 23 a. m.	29.85	49	38	29.80	38	37	90	S.	25	3.12	....	Stratus..	1-4	Cirrus ..	1-4	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	29.93	49	38	29.88	38	37	90	S.	27	3.64	....	Stratus..	1-4	0	0	0	.....	.....	.....	.....	.....	
	10 23 a. m.	29.96	56	39	29.89	39	38	90	S.	29	3.92	....	Stratus..	1-2	Cirrus ..	1-2	S.	.....	.....	.....	.....	.....	
	2 0 p. m.	29.91	49	39	29.86	39	38	90	S.	32	5.12	....	Stratus..	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29.92	48	39	29.87	39	38	90	S.	33	5.42	658	Stratus..	4-4	.....	.....	.....	12.20 p. m.	7.30 p. m.	.03	39	38	Light rain.
	9 0 p. m.	30.03	61	38	29.95	38	37	90	S.	31	4.80	....	Stratus..	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
Saturday, Nov. 9 ...	1 23 a. m.	29.99	54	38	29.93	38	37	90	S.	26	3.38	....	Stratus..	3-4	0	0	0	.....	.....	.....	.....	.....	
	7 0 a. m.	29.96	46	38	29.92	38	37	90	S.	22	2.42	....	Stratus..	3-4	0	0	0	.....	.....	.....	.....	.....	
	10 23 a. m.	29.98	61	40	29.90	40	38	92	S.	21	2.20	....	Stratus..	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	2 0 p. m.	29.93	60	41	29.85	41	40	91	S.	23	2.64	..	Stratus..	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29.92	53	40	29.86	40	39	91	S.	22	2.42	593	Stratus..	4-4	.....	.....	.....	5.10 p. m.	.....	.....	41	37	Rain inappre-

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Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction (moving from—)	RAIN, HAIL, OR SNOW. Commenced.	RAIN, HAIL, OR SNOW. Ended.	RAIN, HAIL, OR SNOW. Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Sunday, Nov. 10....	1 23 a. m	29. 88	54	38	29. 82	38	37	90	S. E.	17	1. 44	....	Stratus	4-4	.....	.....	.....	.....	.....	.03	.....	.....	Light rain.
	7 0 a. m	29. 85	47	36	29. 80	36	35	90	S. E.	13	.84	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	..	
	10 23 a. m	29. 87	60	36	29. 79	36	35	90	S. E.	10	.50	....	Stratus	1-2	Cirrus ..	1-2	S.	.....	.....	.11	.....	.....	
	2 0 p. m	29. 85	64	37	29. 76	37	37	100	S. E.	7	.24	....	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m	29. 8	67	36	29. 70	36	36	100	S. E.	15	1. 12	339	Stratus	3-4	Cirrus ..	1-4	S.	.....	11. 40 a. m.	.01	40	36	
	9 0 p. m	29. 72	57	38	29. 65	38	37	90	S. E.	24	2. 88	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
Monday, Nov. 11...	1 23 a. m	29. 61	53	38	29. 55	38	37	90	S.	41	8. 40	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	7 0 a. m	29. 55	52	39	29. 49	39	38	90	S. W.	38	7. 22	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Upper dense mottl'd cirrus.
	10 23 a. m	29. 62	56	39	29. 55	39	38	90	S. W.	27	3. 64	....	Nimbus	1-2	Cirrus ..	1-2	S.	Night...	11. 05 a. m.	.08	.....	.....	Light rain.
	2 0 p. m	29. 70	57	39	29. 63	39	37	81	S. W.	23	2. 64	....	Hazy	.....	Cirrus ..	4-4	S.	.....	.....	.....	.....	.....	
	5 23 p. m	29. 77	61	38	29. 69	38	36	81	S. W.	24	2. 88	716	Hazy	.....	Cirrus ..	4-4	S.	.....	.....	.....	39	36	
	9 0 p. m	29. 91	53	37	29. 85	37	35	80	S. W.	24	2. 88	....	Hazy	.....	Cirrus ..	1-4	S.	.....	.....	.....	.....	.....	
Tuesday, Nov. 12...	1 23 a. m	29. 98	49	33	29. 93	33	32	89	S. W.	6	.18	....	Hazy	.....	Cumulus	1-2	S. W.	.....	.....	.....	.....	.....	
	7 0 a. m	30. 11	45	34	30. 07	34	33	89	S. W.	4	.08	....	Hazy	.....	Cumulus	1-4	S. W.	.....	.....	.....	.....	.....	
	10 23 a. m	30. 19	69	36	30. 09	36	35	90	S.	5	.12	....	Hazy	.....	Cumulus	1-4	S. W.	D'g night	D'g night	.01	.....	.....	Melted hail.
	2 0 p. m	30. 21	67	37	30. 11	37	35	80	S. W.	10	.50	....	Hazy	.....	0	0	0	.....	.....	.....	.....	.....	
	5 23 p. m	30. 23	60	35	30. 13	35	34	89	S. W.	1	.01	216	Hazy	.....	0	0	0	.....	.....	.....	38	32	
	9 0 p. m.	30. 27	69	35	30. 16	35	33	79	0	0	0	....	0	0	0	0	0	.....	.....	.....	..	.....	
Wednesday, Nov. 13	1 23 a. m	30. 28	56	32	30. 21	32	31	89	0	0	0	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	7 0 a. m	30. 28	49	30	30. 23	30	29	89	0	0	0	....	0	0	0	0	0	.....	.....	.....	.....	.....	Daily velocity taken henceforth at 7 a.m.
	10 23 a. m	30. 28	66	34	30. 18	34	32	79	E.	7	.24	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	2 0 p. m	30. 22	55	35	30. 15	35	33	79	E.	14	.98	...	0	0	Cumulus	1-2	E.	.....	.....	.....	.....	.....	
	5 23 p. m	30. 15	61	34	30. 07	34	33	80	E.	25	3. 38	...	0	0	Cumulus	4-4	E.	.....	.....	.....	.....	.....	
	9 0 p. m	29. 99	58	35	29. 92	35	34	89	E.	32	5. 12	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	35	29	
Thursday, Nov. 14..	1 23 a. m	29. 82	52	37	29. 76	37	35	90	S. E.	40	8. 00	....	Stratus	4-4	.....	.....	.....	9. 20 p. m.	.....	.01	.....	.....	Light rain.
	7 0 a. m	29. 66	45	39	29. 62	39	38	90	S. E.	36	6. 48	603	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	29. 66	59	39	29. 58	39	38	90	S E	35	6. 12	...	Stratus	4-4	.....	.....	.....	.....	.....	.03	.....	.....	
	2 0 p. m	29. 60	57	39	29. 53	39	38	90	S. E.	33	5. 44	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m	29. 56	66	38	29. 47	38	37	90	S. E.	36	6. 48	....	Stratus	4-4	.....	.....	.....	.....	.....	.02	39	33	Occas'l dashes of rain.
	9 0 p. m	29. 48	60	38	29. 40	38	37	90	S. E.	61	18. 60	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Rain.

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Meteorological record for five days ending November 19, 1872.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
	1 23 a. m.	29.34	57	34	29.27	34	33	89	S. W.	16	1.28	....	Nimbus	4-4	.....	...	.....	.....	.....	.21	....	....	Rain changing to snow.
	7 0 a. m.	29.26	51	33	29.21	33	32	89	0	0	0	635	Stratus	1-2	Cirrus	1-2	S. E.	.....	.....	.....	....	....	
Friday, Nov. 15	10 23 a. m.	29.30	70	34	29.20	34	34	100	S.W.	9	.40	....	Nimbus	1-4	Cumulus	3-4	S. W.	.....	10.20 a. m.	.04	....	....	
	2 0 p. m.	29.25	69	35	29.15	35	34	89	S.	8	.32	....	Stratus	1-4	Cumulus	1-4	S.	.....	.....	.....	....	....	
	5 23 p. m.	29.22	68	32	29.12	32	31	89	S.W.	11	.60	....	0	0	Cumulus	1-4	S. W.	.....	.....	.....	38	32	
	9 0 p. m.	29.16	65	32	29.07	32	31	89	S.W.	9	.40	....	0	0	0	0	0	.....	.....	.....	....	....	
	1 23 a. m.	29.14	58	31	29.07	31	30	89	S.W.	19	1.80	....	0	0	Cumulus	1-2	S.W.	.....	.....	.....	....	....	
	7 0 a. m.	29.12	46	34	29.08	34	33	89	S.	21	2.20	324	Stratus	1-4	Cumulus	3-4	S.	.....	.....	.....	....	....	
Saturday, Nov. 16 ..	10 23 a. m.	29.19	66	35	29.10	35	34	89	S.	27	3.64	....	Nimbus	3-4	Cumulus	1-4	S.	4.00 a. m.	.....	.04	....	....	
	2 0 p. m.	29.20	60	37	29.12	37	36	90	S.	25	3.12	....	0	0	Cumulus	1-4	S.	.....	.....	.....	....	....	
	5 23 p. m.	29.26	65	35	29.17	35	34	89	S.W.	30	4.50	....	0	0	Cumulus	4-4	S.W.	.....	6.00 p. m.	.01	37	31	
	9 0 p. m.	29.41	66	35	29.32	35	34	89	N.W.	26	3.38	....	Nimbus	1-4	Cumulus	1-4	N. W.	6.00 p. m.	.....	.....	....	....	
	1 23 a. m.	29.51	62	33	29.43	33	32	89	N.W.	8	.32	....	0	0	0	0	0	.....	.....	.....	....	....	
	7 0 a. m.	29.71	53	32	29.65	32	32	100	N.W.	22	2.42	451	Stratus	1-2	Cumulus	1-2	N. W.	.....	.....	.....	....	....	
Sunday, Nov. 17....	10 23 a. m.	29.78	70	34	29.67	34	32	79	N.W.	14	.98	....	Stratus	1-2	Cumulus	1-2	W.	Night...	6.50 a. m.	.02	....	....	Melted snow.
	2 0 p. m.	29.83	72	33	29.72	33	29	60	N.W.	12	.72	....	0	0	0	0	0	.....	.....	.....	....	....	
	5 23 p. m.	29.82	72	32	29.71	32	29	69	N.W.	3	.04	....	0	0	Cumulus	1-2	N. W.	.....	.....	.....	35	31	
	9 0 p. m.	29.60	72	28	29.69	28	26	76	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	....	
	1 23 a. m.	29.61	56	27	29.54	27	25	76	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	....	
	7 0 a. m.	29.40	47	32	29.36	32	31	89	S. E.	35	6.12	295	0	0	Cumulus	4-4	S. E.	.....	.....	.....	....	....	
	10 23 a. m.	29.31	64	33	29.22	33	32	89	S. E.	36	6.48	....	0	0	Cum.-cir.	4-4	S. E.	.....	.....	.....	....	....	
Monday, Nov. 18	2 0 p. m.	29.11	61	34	29.03	34	32	79	S. E.	38	7.22	....	0	0	Cumulus	4-4	S. E.	.....	.....	.....	....	....	
	5 23 p. m.	28.93	59	34	28.86	34	32	79	S. E.	42	8.82	....	Stratus	4-4	.....	...	.....	.....	.....	.....	34	26	
	9 0 p. m.	28.75	59	35	28.68	35	34	89	S. E.	64	30.51	....	Nimbus	4-4	.....	...	.....	9.20 p. m.	.....	.....	....	....	Furious rain with gale.
	1 23 a. m.	28.70	60	35	28.62	35	34	89	S. E.	24	2.88	....	.....	...	.....	4-4	.....	.....	.....	.17	....	....	
	7 0 a. m.	28.76	45	35	28.72	35	34	89	S.W.	9	.40	809	Stratus	1-4	Cumulus	1-2	S.W.	.....	.....	.....	....	....	
	10 23 a. m.	28.84	58	37	28.71	37	36	90	S.W.	16	1.28	....	0	0	Cumulus	1-2	S.W.	.....	Night...	.02	....	....	
Tuesday, Nov. 19	2 0 p. m.	28.90	67	37	28.78	37	36	90	S.W.	17	1.44	....	Stratus	1-4	Cumulus	1-4	S.W.	.....	.....	.....	....	....	
	5 23 p. m.	28.96	67	37	28.84	37	36	90	S.W.	17	1.44	....	Stratus	1-4	Cumulus	1-4	S.W.	.....	.....	.....	37	36	
	9 0 p. m.	29.00	67	37	28.88	37	36	90	S.W.	17	1.44	....	Stratus	1-4	Cumulus	1-4	S.W.	.....	.....	.....	....	....	

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Day and date of observation.	Time of observation.	Barometer.	Attached.	Exposed.	Corrected barometer.	Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction. (moving from—)	Commenced.	Ended.	Amount of rain or melted snow.	Maximum.	Minimum.	Remarks.
Wednesday, Nov. 20	1 23 a. m.	29.05	59	34	28.98	34	33	89	S. W.	33	5.44	...	Stratus	1-4	Cumulus	1-2	S. W.	8.30 p. m.	.....	.01	...	...	
	7 0 a. m.	29.12	45	34	29.06	34	33	89	S. W.	14	.98	506	Stratus	1-4	Cirrus	3-4	W.	14	.....	...	...	...	
	10 23 a. m.	29.26	61	33	29.18	33	33	100	W.	61	14.60	...	Nimbus	4-4	...	...	...	...	.....	.04	...	...	
	2 0 p. m.	29.41	58	36	29.33	36	32	61	W.	28	3.93	...	Stratus	1-4	Cumulus	1-2	W.	...	.....	...	...	...	
	5 23 p. m.	29.45	54	34	29.39	34	32	79	W.	27	3.64	...	Stratus	1-4	Cumulus	1-4	W.	...	5.30 p. m.	.02	37	32	
	9 0 p. m.	29.36	61	35	29.30	35	33	79	S.	16	1.28	...	Stratus	3-4	Cirrus	1-4	S.	10.45 p. m.	.....	...	...	...	
	1 23 a. m.	29.46	57	37	29.41	37	36	90	S.	41	8.40	...	Nimbus	4-4	...	...	...	...	.....	.14	...	...	Rain.
	7 0 a. m.	29.42	46	40	29.38	40	39	91	S.	36	6.46	673	Stratus	4-4	...	...	...	...	.....	...	...	...	Fine rain.
	10 23 a. m.	29.52	64	40	29.43	40	39	91	S.	31	4.80	...	Stratus	1-2	Cirrus	1-2	S.	...	.....	.17	...	...	
Thursday, Nov. 21	2 0 p. m.	29.57	68	40	29.47	40	39	91	S.	25	3.12	...	Hazy	...	Cumulus	1-2	S.	...	.....	...	...	...	
	5 23 p. m.	29.61	67	39	29.51	39	38	90	S.	23	2.42	...	Hazy	...	Cirrus	4-4	S.	...	9.50 a. m.	...	41	33	
	9 0 p. m.	29.61	66	38	29.51	38	37	90	S.	18	1.62	...	Hazy	...	Cirrus	4-4	S.	...	.....	...	...	...	
	1 23 a. m.	29.61	59	37	29.53	37	37	100	S.	13	.84	...	Stratus	4-4	...	...	...	11.10 p. m.	Night.	.06	...	...	
	7 0 a. m.	29.69	47	37	29.65	37	35	80	S.	34	5.78	540	Hazy	...	0	0	0	...	.....	...	...	...	
	10 23 a. m.	29.83	62	38	29.74	38	36	81	S. W.	38	7.22	...	Hazy	...	0	0	0	8.40 a. m.	8.55 a. m.	.02	...	...	Melted snow or hail.
Friday, Nov. 22	2 0 p. m.	29.89	62	38	29.80	38	36	81	S.	27	3.64	...	Hazy	...	Cirrus	3-4	S. W.	...	.....	...	...	...	
	5 23 p. m.	29.93	69	37	29.83	37	36	90	S.	15	1.12	...	Hazy	...	Cirrus	4-4	S. W.	...	.....	...	39	34	
	9 0 p. m.	29.83	67	37	29.73	37	36	90	E.	20	2.00	...	Stratus	1-2	Cirrus	1-2	S. E.	...	.....	...	...	...	
	1 23 a. m.	29.57	58	39	29.50	39	38	90	S. E.	44	9.08	...	...	...	...	4-4	...	10.30 p. m.	.....	.08	...	...	
Saturday, Nov. 23	7 0 a. m.	29.21	48	39	29.16	39	38	90	S. E.	45	10.12	766	Stratus	4-4	...	...	...	...	.....	...	...	...	Maximum velocity, 74.
	10 23 a. m.	29.23	60	38	29.15	38	37	90	S. E.	23	2.64	...	Stratus	1-2	Cirrus	1-2	S. E.	...	.....	.11	...	...	Rain.
	2 0 p. m.	29.15	70	39	29.09	39	38	90	S. E.	30	4.50	...	Hazy	...	0	0	...	...	.....	...	...	...	
	5 23 p. m.	29.25	63	37	29.17	37	36	90	S. E.	33	5.44	...	Hazy	...	Cumulus	1-2	S. E.	...	10.20 a. m.	...	39	37	
	9 0 p. m.	29.29	61	37	29.20	37	36	90	S. E.	34	5.78	...	Hazy	...	Cumulus	4-4	S. E.	...	.....	...	...	...	
	1 23 a. m.	29.37	54	37	29.31	37	36	90	E.	26	3.38	...	0	...	Cumulus	4-4	S. E.	...	.....	...	...	...	Aurora.
	7 0 a. m.	29.36	59	35	29.18	35	34	89	E.	6	.18	613	Stratus	4-4	...	...	...	...	.....	...	...	...	
	10 23 a. m.	29.25	66	35	29.16	35	35	100	N. E.	7	.24	...	Fog	4-4	...	...	...	...	.....	...	...	...	
Sunday, Nov. 24	2 0 p. m.	29.11	63	35	29.03	35	34	89	N. W.	18	1.62	...	Stratus	4-4	...	...	...	...	.....	...	...	...	Rain.
	5 23 p. m.	29.08	67	34	28.98	34	34	100	N.	11	.60	...	Stratus	1-2	Cirrus	1-2	N.	4.20 p. m.	.....	.03	37	34	
	9 0 p. m.	29.05	69	36	28.95	35	35	100	N.	13	.84	...	Stratus	1-4	Cirrus	1-2	...	...	.....	...	...	...	Aurora.

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Meteorological record for the five days ending November 29, 1872.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS Kind.	LOWER CLOUDS Amount.	UPPER CLOUDS Kind.	UPPER CLOUDS Amount.	UPPER CLOUDS Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Monday, Nov. 25	1 23 a. m.	29.02	61	35	28.94	35	35	100	N. W.	11	.60	....	Stratus	1-4	Cirrus	1-2	N. W.			.02	....	....	
	7 0 a. m.	29.07	53	35	29.01	35	35	100	N. W.	13	.84	272	Stratus	4-4							....	....	
	10 23 a. m.	29.08	66	36	28.99	36	35	90	N. W.	12	.72	....	Fog	3-4	Cirrus	1-4	N. W.				....	....	
	2 0 p. m.	29.08	72	36	28.97	36	36	100	N. W.	16	1.28	....	Stratus	4-4							....	....	
	5 23 p. m.	29.07	68	35	28.97	35	35	100	N. W.	28	3.92	....	Stratus	1-2	Cirrus	1-2	N. W.			.01	36	33	Dashes of rain.
	9 0 p. m.	29.11	71	35	29.00	35	35	100	N. W.	23	2.64	....	Nimbus	4 4							....	....	
Tuesday, Nov. 26	1 23 a. m.	29.24	60	34	29.16	34	33	89	N. W.	14	.98	....	0	0	Cumulus	3-4	N. W.			.03	....	....	Do.
	7 0 a. m.	29.40	51	35	29.35	35	35	100	N. W.	12	.72	377	0	0	Cumulus	4-4	N. W.				....	....	Do.
	10 23 a. m.	29.48	68	37	29.38	37	36	90	N. W.	14	.98	....	Nimbus	1-2	Cumulus	1-4	N. W.			.07	....	....	
	2 0 p. m.	29.55	70	35	29.45	35	34	89	N. W.	20	2.00	....	Stratus	1-4	Cumulus	1-2	N. W.				....	....	
	5 23 p. m.	29.65	66	34	29.56	34	33	89	N. W.	29	4.20	....	Stratus	1-4	Cumulus	1-2	N. W.			.02	37	34	Flurries snow.
	9 0 p. m.	29.75	68	33	29.65	33	32	89	N. W.	26	3.38	....	0	0	Cumulus	1-2	N. W.				....	....	
Wednesday, Nov. 27	1 23 a. m.	29.74	59	32	29.66	32	31	89	N. W.	11	.60	....	0	0	Cumulus	4-4	N. W.			.01	....	....	Aurora.
	7 0 a. m.	29.72	50	32	29.67	32	31	89	0	0	0	380	Nimbus	1-4	Cumulus	3-4	0				....	....	
	10 23 a. m.	29.72	68	33	29.62	33	32	89	S. E.	4	.08	....	Stratus	1-2	Cirrus	1-2	S. W.	Night.		.01	....	....	Light snow.
	2 0 p. m.	29.59	70	34	29.49	34	33	89	S. E.	14	.98	....	Stratus	1-2	Cirrus	1-2	S. W.				....	....	
	5 23 p. m.	29.40	63	34	29.31	34	33	89	S. E.	38	7.22	....	Nimbus	4-4							....	....	
	9 0 p. m.	29.13	67	35	29.03	35	34	89	S. E.	46	10.58	....	Nimbus	4-4							34	32	Light rain.
Thursday, Nov. 28	1 23 a. m.	28.90	68	35	28.82	35	34	89	S. E.	62	19.11	....	Stratus	4-4							....	....	Storm aurora.
	7 0 a. m.	28.86	54	34	28.80	34	32	79	S. W.	36	6.48	587	Hazy	....	Cumulus	1-4	S. W.			.08	....	....	Storm.
	10 23 a. m.	28.90	59	33	28.83	33	31	80	S. W.	35	6.12	....	Stratus	1-4	Cumulus	1-2	S. W.			.01	....	....	Light dashes of hail.
	2 0 p. m.	28.87	59	33	28.80	33	31	80	S. W.	34	5.78	....	Nimbus	1-2	Cumulus	1-2	S. W.				....	....	
	5 23 p. m.	28.86	63	33	28.76	33	31	80	S. W.	38	7.22	....	Nimbus	1-4	Cumulus	1-2	S. W.				....	....	
	9 0 p. m.	28.85	61	33	28.77	33	31	80	S. W.	33	5.44	....	Nimbus	1-4	Cumulus	1-4	S. W.		Night.	.02	35	32	Light hail at intervals.
Friday, Nov. 29	1 23 a. m.	28.86	58	30	28.79	30	28	78	S. W.	18	1.62	....	Stratus	1-4	Cumulus	1-4	S. W.				....	....	
	7 0 a. m.	28.86	58	30	28.79	30	28	78	S.	4	.08	590	Stratus	1-4	Cumulus	1-4	S.				....	....	
	10 23 a. m.	28.93	69	30	28.83	30	29	89	S. E.	6	.18	....	Hazy	....	Cirrus	1-2	S. E.				....	....	

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Day and date of observation.	Time of observation.	Barometer.	Attached.	Exposed.	Corrected barometer.	Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Daily Velocity.	Upper clouds. Kind.	Amount.	Direction, (moving from—)	Rain or snow. Commenced.	Ended.	Amount of rain or melted snow.	Therm. Maximum.	Therm. Minimum.	Remarks.
Saturday, Nov. 30	1 23 a. m.	29. 12	59	59	29. 05	29	28	88	N. W.	11	.60	.236	0 Nimbus	0 4-4	....	....	....	....	....	....	Heavy snow.
	7 0 a. m.	29. 22	46	59	29. 17	29	28	85	N. W.	46	10.36		Nimbus	1-2	....	....	....	....	....	....	
	10 23 a. m.	29. 34	71	30	29. 33	30	28	78	N. W.	31	4.60	....	Cumulus	1-4	N. W.	Night.	11.10 a. m.	.21	....	....	Melted snow.
	2 0 p. m.	29. 42	62	29	29. 34	29	26	76	N. W.	28	3.92	....	Cumulus	4-4	N. W.	....	....	....	30	26	
	5 23 p. m.	29. 49	70	29	29. 39	27	25	70	N. W.	26	3.38	....	Cumulus	3-4	N. W.	....	....	....	....	....	Aurora in S.
	9 0 p. m.	29. 53	70	29	29. 43	26	25	87	N. W.	11	.60	....	Cumulus	1-2	N. W.	....	....	....	....	....	Aurora.
	1 23 a. m.	29. 49	57	29	29. 42	23	22	86	W.	2	.02	....	Cumulus	3-4	0	5.30 p. m.	....	.14	....	....	Melted snow.
	7 0 a. m.	29. 46	64	29	29. 40	23	20	85	0	0	0	337	Cumulus	1-2	S. W.	....	....	....	....	....	
	10 23 a. m.	29. 44	69	26	29. 34	26	19	85	0	0	0	....	Cumulus	1-2	0	....	....	.01	....	....	
Sunday, Dec. 1	2 0 p. m.	29. 38	65	26	29. 29	26	25	87	S. E.	6	.18	....	Cumulus	1-2	S. E.	Night.	....	....	....	....	Aurora at 5.30 p. m.
	5 23 p. m.	29. 33	63	27	29. 24	27	26	88	E.	23	2.64	....	Cumulus	4-4	E.	4.15 p. m.	5.10 p. m.	.02	28	19	
	9 0 p. m.	29. 32	68	26	29. 22	26	25	87	N. E.	13	.84	....	Cumulus	3-4	N. E.	....	....	....	....	....	
Monday, Dec. 2	1 23 a. m.	29. 25	57	26	29. 12	26	25	87	E.	19	1.90	238	Cumulus	4-4	E.	....	....	....	....	....	Aurora.
	7 0 a. m.	29. 18	46	27	29. 14	26	24	87	E.	17	1.44	....	Cumulus	3-4	E.	....	....	....	....	....	
	10 23 a. m.	29. 19	57	29	29. 12	27	25	87	E.	18	1.62	....	Cumulus	3-4	E.	....	....	....	....	....	
	2 0 p. m.	29. 21	64	30	29. 12	29	26	80	E.	29	3.92	....	Cumulus	3-4	E.	....	....	....	....	....	
	5 23 p. m.	29. 22	66	29	29. 13	28	27	78	N. E.	30	4.50	....	Cumulus	4-4	N. E.	....	....	....	30	26	
	9 0 p. m.	29. 22	62	27	29. 14	27	26	82	E.	31	4.69	....	Cumulus	4-4	E.	....	....	....	....	....	
	1 23 a. m.	29. 20	56	26	29. 13	26	25	83	N. E.	34	5.78	....	Nimbus	4-4	....	Night.	....	.00	....	....	
	7 0 a. m.	29. 16	58	30	29. 11	30	28	80	N. E.	48	11.52	692	Stratus	4-4	....	....	....	....	....	....	
Tuesday, Dec. 3	10 23 a. m.	29. 14	68	30	29. 14	30	29	80	N. E.	41	8.40	....	Stratus	4-4	....	....	9.20 a. m.	.07	....	....	Fine snow. Melted snow.
	2 0 p. m.	29. 20	67	30	29. 11	30	29	69	N. E.	42	8.82	....	0	0	....	....	....	....	....	....	
	5 23 p. m.	29. 34	70	30	29. 31	30	29	76	N. E.	31	4.80	....	Cumulus	4-4	N. E.	....	....	....	31	27	
	9 0 p. m.	29. 36	69	28	29. 25	28	26	76	N.	30	4.50	....	Cumulus	1-2	N.	....	....	....	....	....	
	1 23 a. m.	29. 34	59	26	29. 30	26	25	87	N.	44	9.68	....	Cumulus	4-4	N.	6.00 p. m.	....	.03	....	....	
	7 0 a. m.	29. 37	51	24	29. 32	24	23	86	N.	40	8.00	673	Nimbus	1-2	N.	....	....	....	....	....	Showers of snow.
Wednesday, Dec. 4	10 23 a. m.	29. 40	64	24	29. 31	24	23	86	N.	43	9.42	....	Nimbus	1-4	N.	....	....	.03	....	....	
	2 0 p. m.	29. 37	63	25	29. 27	25	24	87	N.	45	10.12	....	Nimbus	1-2	N.	....	....	....	....	....	
	5 21 p. m.	29. 40	63	23	29. 31	23	22	86	N.	44	9.68	....	Stratus	4-4	....	....	....	.05	30	23	
	9 0 p. m.	29. 42	61	23	29. 34	23	22	86	N.	39	7.69	....	Nimbus	4-4	....	....	....	....	....	....	

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Meteorological record for the five days ending December 9, 1872.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Thursday, Dec. 5	1 23 a. m.	29.41	54	23	29.35	23	22	86	N.	36	6.48	....	0	0	Cumulus	3-4	N.	.....	.....	.03	.....	.....	Melted snow.
	7 0 a. m.	29.45	48	23	29.40	23	22	86	N.	38	7.22	904	Nimbus	1-4	Cumulus	3-4	N.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.53	64	23	29.44	23	21	73	N.	36	6.48	....	Nimbus	1-2	Cumulus	1-2	N.	.....	.....	.05	.....	.....	Do.
	2 0 p. m.	29.54	61	22	29.46	22	21	86	N.	42	8.82	....	Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29.61	63	20	29.52	20	18	70	N.	34	5.78	....	0	0	Cumulus	4-4	N.	.....	.....	.06	23	20	Do.
	9 0 p. m.	29.66	64	21	29.57	21	19	71	N.	34	5.78	....	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	.....	
Friday, Dec. 6	1 23 a. m.	29.73	59	21	29.65	21	20	85	N. W.	32	5.12	....	Nimbus	1-2	Cumulus	1-2	N. W.	.....	.....	.03	.....	.....	
	7 0 a. m.	29.77	45	23	29.73	23	22	86	N. W.	29	4.20	803	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.86	62	25	29.77	25	23	74	N. W.	30	4.50	....	Nimbus	1-4	Cumulus	3-4	N. W.	.....	.....	.03	.....	.....	Do.
	2 0 p. m.	29.92	65	25	29.83	25	24	87	N. W.	24	2.88	....	Nimbus	3-4	Cumulus	1-4	N. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.98	71	25	29.87	25	23	74	N. W.	18	1.62	....	0	0	Cumulus	4-4	N. W.	.....	.....	.02	26	20	Do.
	9 0 p. m.	29.99	70	27	29.88	27	26	88	N. W.	17	1.44	....	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	
Saturday, Dec. 7	1 23 a. m.	30.00	57	26	29.93	26	25	87	N. W.	16	1.28	....	0	0	Cumulus	4-4	N. W.	.....	7.50 p. m.	.02	.....	.....	Do.
	7 0 a. m.	30.07	68	26	29.97	26	24	75	N. W.	22	2.42	530	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.06	58	26	29.99	26	24	75	N. W.	23	2.64	....	0	0	Cumulus	4-4	N. W.	9.00 a. m.	.....	.....	.....	.....	
	2 0 p. m.	30.09	71	26	29.98	26	24	75	N. W.	18	1.62	....	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.09	67	26	29.99	26	24	75	N.	14	.98	...	0	0	Cumulus	4-4	N. W.	.....	3.00 p. m.	.....	27	25	
	9 0 p. m.	30.10	68	26	30.00	26	24	75	N.	14	.98	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
Sunday, Dec. 8	1 23 a. m.	30.07	56	24	30.00	24	23	86	N.	5	.12	....	0	0	Cumulus	1-2	N. W.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.03	47	20	30.00	20	19	85	Calm.	0	0	393	0	0	Cumulus	1-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.09	56	27	30.02	27	26	88	Calm.	0	0	....	0	0	Cumulus	1-2	N. W.	.....	.....	.....	.....	.....	
	2 0 p. m.	30.10	67	29	30.00	29	28	88	Calm	0	0	....	0	0	Cumulus	3-4	N. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.11	66	26	30.01	26	25	87	E.	2	.02	...	0	0	Cumulus	1-4	N. W.	.....	.....	.....	30	19	
	9 0 p. m.	30.10	62	26	30.01	26	24	75	E.	4	.08	....	0	0	0	0	0	.....	.....	.....	.....	.....	
Monday, Dec. 9	1 23 a. m.	30.08	58	26	30.01	26	24	75	S. E.	11	.60	....	Stratus	1-4	Cirrus	1-4	N. W.	.....	.....	.....	.....	.....	
	7 0 a. m.	29.98	44	28	29.94	28	26	76	S. E.	15	1.12	134	0	0	Cirrus	3-4	S. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.97	51	30	29.91	30	29	89	S. E.	16	1.28	....	Stratus	1-4	Cirrus	3-4	S. W.	.....	.....	.....	.....	.....	
	2 0 p. m.	29.96	64	32	29.87	32	30	79	S. E.	17	1.44	....	Stratus	1-4	Cirrus	1-2	S. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.97	66	29	29.87	29	28	88	S. E.	17	1.44	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	32	25	
	9 0 p. m.	29.97	72	29	29.86	29	28	88	S. E.	16	1.28	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	

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Day and date of observation.	Time of observation.	Barometer.	Attached.	Exposed.	Corrected barometer.	Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from—)	Commenced.	Ended.	Amount of melted s	Maximum.	Minimum.	Remarks.
Tuesday, Dec. 10	1 23 a. m.	29.82	56	55	29.85	25	24	100	N. W.	5	.12	....	Stratus	4-4	....	....	....	....	....	....	....	....	
	7 0 a. m.	29.89	54	53	29.92	23	22	96	Calm.	0	.00	297	Stratus	4-4	....	....	....	....	....	....	....	....	
	10 23 a. m.	29.86	59	54	29.80	24	23	86	N.	3	.04	....	Stratus	4-4	....	....	....	7.30 a. m.	9.00 a. m.	....	....	....	Sprinkle of fine rain.
	2 0 p. m.	29.85	63	64	29.76	24	24	100	N. W.	5	.12	....	Stratus	4-4	....	....	....	....	....	....	....	....	
	5 23 p. m.	29.82	57	53	29.73	23	23	100	N.	1	.01	....	Stratus	3-4	Cirrus	1-4	N. W.	....	....	....	39	23	
	9 0 p. m.	29.82	58	54	29.72	24	24	100	E.	9	.40	....	0	0	Cirrus	4-4	N. W.	....	....	....	....	....	
	1 30 a. m.	29.77	57	53	29.70	23	22	96	E.	11	.60	....	Stratus	1-2	Cirrus	1-4	N. W.	....	....	....	....	....	
	7 0 a. m.	29.75	58	56	29.66	26	25	96	E.	13	.84	166	Stratus	1-4	0	0	0	....	....	....	....	....	
	10 23 a. m.	29.72	63	58	29.64	28	27	96	E.	20	3.92	....	Stratus	4-4	Cirrus	3-4	S.	....	....	....	....	....	
Wednesday, Dec. 11	2 0 p. m.	29.71	69	61	29.61	31	30	89	E.	21	2.20	....	Stratus	4-4	....	....	....	....	....	....	....	....	Melted snow.
	5 23 p. m.	29.69	67	59	29.59	33	32	90	E.	22	2.42	....	Stratus	1-2	Cirrus	1-2	S. E.	11.10 a. m.	....	.01	33	23	
	9 0 p. m.	29.69	70	59	29.59	31	31	93	E.	24	2.88	....	Stratus	1-2	Cirrus	1-2	S. E.	....	....	....	....	....	
	2 23 a. m.	29.58	58	54	29.51	34	34	96	E.	25	3.12	....	Stratus	4-4	....	....	....	....	....	....	....	....	
	7 0 a. m.	29.46	62	54	29.36	34	33	93	E.	35	6.12	513	Nimbus	4-4	....	....	....	....	....	.05	....	....	Rain.
	10 23 a. m.	29.36	68	58	29.28	34	34	96	E.	41	8.40	....	Nimbus	4-4	....	....	....	....	....	....	....	....	
Thursday, Dec. 12	2 0 p. m.	29.33	71	56	29.25	35	34	100	S. E.	53	14.04	....	Stratus	3-4	Cirrus	1-4	S.	....	....	.09	....	....	Do.
	5 23 p. m.	29.33	64	63	29.24	33	33	100	S.	39	7.60	....	Stratus	1-4	Cirrus	3-4	S.	....	....	....	....	....	
	9 0 p. m.	29.39	66	64	29.31	33	31	96	S.	24	2.88	....	Stratus	1-4	Cumulus	1-4	S.	....	....	....	....	....	
	1 23 a. m.	29.36	57	58	29.29	32	31	89	S.	24	2.88	....	Stratus	1-2	Cirrus	1-4	S.	....	....	....	....	....	
	7 0 a. m.	29.07	54	56	29.01	35	34	89	S.	42	8.82	714	Nimbus	4-4	....	....	....	....	....	....	....	....	
	10 23 a. m.	29.12	56	56	29.03	36	35	90	S.	39	7.60	....	Haze	....	Cumulus	1-4	S.	....	....	....	....	....	Rain.
Friday, Dec. 13	2 0 p. m.	29.21	66	65	29.12	35	34	83	S.	36	6.48	....	Haze	....	0	0	0	....	....	.14	....	....	
	5 23 p. m.	29.30	63	64	29.19	34	33	89	S.	35	6.12	....	Stratus	1-4	Cumulus	1-4	S.	3.40 p. m.	3.45 p. m.	.01	36	32	Melted snow and sleet.
	9 0 p. m.	29.39	64	63	29.25	34	33	89	S.	34	5.78	....	Haze	....	Cumulus	1-4	S.	9.40 p. m.	10.05 p. m.	.01	....	....	
	1 23 a. m.	29.33	58	62	29.26	32	31	89	S. E.	16	1.28	653	Haze	....	Cirrus	1-2	S.	....	....	....	....	....	Melted snow.
	7 0 a. m.	29.26	44	53	29.22	33	32	93	E.	20	2.00	....	Stratus	0	Cumulus	4-4	....	....	....	.04	....	....	
Saturday, Dec. 14	10 23 a. m.	29.26	63	63	29.17	33	33	100	S. E.	23	2.64	....	Stratus	1-2	Cirrus	1-2	S. E.	7.35 a. m.	....	....	....	....	Do.
	2 0 p. m.	29.31	67	64	29.11	34	34	100	S. W.	51	13.00	....	0	0	Cumulus	1-2	S. W.	....	....	....	....	....	
	5 23 p. m.	29.43	68	68	29.35	32	31	90	S. W.	33	5.44	....	0	0	Cumulus	1-2	S. W.	....	....	01.	35	32	Rain and snow.
	9 0 p. m.	29.47	72	68	29.36	33	32	100	S. E.	14	.96	....	0	0	Cirrus	4-4	S. W.	....	....	....	....	....	

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Meteorological record for the five days ending December 19, 1872.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Sunday, Dec. 15	1 23 a. m.	29.33	59	32	29.25	32	32	100	S. E.	12	.72	..	Nimbus	4-4	.....	.....	.....	9.30 p. m.	.....	.14	.....	.....	Melted snow.
	7 0 a. m.	29.08	63	34	29.00	34	33	89	S.	18	1.62	469	0	0	Cumulus	4-4	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	29.17	66	32	29.08	32	32	100	S. W.	16	1.28	....	Stratus	4-4	.....	.....	.....	.....	Night...	.27	.....	.....	Do.
	2 0 p. m.	29.30	71	33	29.19	33	32	89	S. W.	6	.18	....	0	0	Cirrus ..	1-2	S.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.34	70	33	29.24	33	32	89	S. E.	3	.04	....	Nimbus	1-2	Cirrus ..	1-2	S.	5.20 p. m.	.....	.01	34	32	Rain.
	9 0 p. m.	29.34	71	32	29.23	32	32	100	S. E.	11	.60	....	0	0	Cirrus ..	1-4	S.	.....	.....	.....	.....	.....	
Monday, Dec. 16	1 23 a. m.	29.31	65	33	29.22	33	32	89	S. E.	14	.98	....	Stratus	1-4	Cumulus	3-4	S.	0	0	.01	.....	.....	Melted snow.
	7 0 a. m.	29.26	56	33	29.19	33	32	89	S.	37	6.84	307	Stratus	1-4	Cumulus	1-2	S.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.29	64	34	29.20	34	33	89	S.	31	4.80	....	Stratus	1-4	Cumulus	1-2	S.	0	0	.02	.....	.....	Rain.
	2 0 p. m.	29.32	72	34	29.21	34	33	89	S.	22	3.92	....	Nimbus	1-4	Cumulus	1-2	S.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.30	72	33	29.19	33	32	89	S. E.	14	.98	....	Haze....	....	Cirrus ..	3-4	S.	.....	.....	.01	35	31	Melted snow.
	9 0 p. m.	29.23	71	33	29.12	33	32	89	E.	16	1.28	...	0	0	Cirrus ..	4-4	S.	.....	.....	.....	.....	.....	
Tuesday, Dec. 17	1 23 a. m.	29.14	58	33	29.07	33	32	89	E.	7	.24	....	0	0	Cirrus ..	4 4	S.	.....	Night...	.01	.....	.....	Do.
	7 0 a. m.	28.88	57	32	28.81	32	32	100	S.	2	.02	431	Fog.....	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	28.91	65	32	28.82	32	31	89	W.	17	1.44	....	0	0	Cumulus	1-4	W.	.....	.....	.....	.....	.....	
	2 0 p. m.	28.72	69	31	28.62	31	30	89	N. E.	18	1.62	....	Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	28.93	70	31	28.83	31	30	89	N. E.	8	.32	....	0	0	Cumulus	4-4	N.	.....	.....	.....	33	31	
	9 0 p. m.	28.72	69	31	28.62	31	30	89	N. E.	18	1.62	....	Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
Wednesday, Dec. 18	1 23 a. m.	28.51	58	31	28.44	31	30	89	N. E.	30	4.50	....	Nimbus	4-4	.....	.....	.....	.....	8.10 p. m.	.....	.13	.....	Do.
	7 0 a. m.	28.19	46	35	28.15	35	35	100	S. E.	35	6.12	336	Stratus	3-4	Cirrus ..	1-4	S.	.....	.....	.....	.....	.....	
	10 23 a. m.	28.20	69	35	28.10	35	35	100	S. E.	34	5.78	....	Stratus	4-4	.....	.....	.....	.....	.....	.24	.....	.....	Rain.
	2 0 p. m.	28.15	70	35	28.05	35	35	100	S. E.	30	4.50	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	28.19	69	35	28.09	35	35	100	S. E.	28	3.92	....	Stratus	3-4	Cirrus ..	1-4	S.	.....	.....	.04	36	31	Do.
	9 0 p. m.	28.24	65	34	28.15	34	33	89	S. W.	23	2.64	....	Haze....	....	Cumulus	3-4	S. W.	.....	.....	.....	.....	.....	
Thursday, Dec. 19	1 23 a. m.	28.47	54	32	28.41	32	31	89	S. W.	35	6.12	....	Stratus	1-4	Cumulus	1-2	S. W.	.....	.....	.02	.....	.....	Melted snow.
	7 0 a. m.	28.85	49	31	28.80	31	30	89	S. W.	28	3.92	816	Stratus	1-2	Cumulus	1-2	S. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	28.98	58	30	28.91	30	29	89	S. W.	34	5.78	....	Stratus	1-4	Cumulus	1-2	S. W.	.....	.....	.04	.....	.....	Do.
	2 0 p. m.	29.12	60	29	29.04	29	28	88	S. W.	22	2.42	....	Stratus	1-4	Cumulus	1-4	S. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.24	66	29	29.15	29	28	88	S. W.	27	3.64	....	Stratus	1-4	Cumulus	1-4	S. W.	.....	.....	.01	35	29	Do.
	9 0 p. m.	29.49	67	29	29.39	29	28	88	S. W.	30	4.50	....	0	0	Cumulus	1-4	S. W.	.....	.....	.....	.....	.....	

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Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Corrected Barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative Humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily Velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from——)	RAIN OR SNOW. Common'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Friday, Dec. 20	1 23 a. m.	29.55	57	26	29.42	26	25	87	S. W.	9	.40	516	Stratus	1-4	Cumulus	1-4	S. W.		8.30 p. m.	.05			Melted snow.
	7 0 a. m.	29.64	46	26	29.60	26	25	87	Calm.	0	.00		Stratus	0	Cumulus	1-4	S.						
	10 23 a. m.	29.72	62	30	29.64	30	29	89	S. E.	7	.24		Stratus	1-4	Cumulus	1-4	S.		9.20 a. m.	.01			Melted snow.
	2 0 p. m.	29.70	70	30	29.66	30	29	89	S. E.	5	.12		Stratus	0	Cirrus	1-4	S.						
	5 23 p. m.	29.83	71	29	29.72	29	26	89	S. E.	2	.02		Stratus	1-2	Cirrus	1-2	S. E.				31	25	
	9 0 p. m.	29.87	69	31	29.77	31	30	89	S. E.	7	.24		0	0	Cirrus	4-4							
	1 23 a. m.	29.90	58	30	29.83	30	29	89	E.	5	.12		0	0	Cirrus	3-4							
Saturday, Dec. 21	7 0 a. m.	29.99	61	30	29.91	30	29	89	E.	5	.12	123	0	0	0	0	0						
	10 23 a. m.	30.05	67	29	29.93	29	28	88	N. E.	6	.18		0	0	0	0							
	2 0 p. m.	30.06	70	31	29.95	31	29	78	N. E.	7	.24		0	0	0	0	0						
	5 23 p. m.	30.08	71	30	29.97	30	29	72	N. E.	19	.98		0	0	Cumulus	1-4	N. E.				31	29	
	9 0 p. m.	30.09	68	29	29.99	28	27	86	N. E.	33	1.80		0	0	Cirrus	1-4	S.						
	1 23 a. m.	30.05	57	30	29.94	30	30	100	N. E.	32	5.12		Stratus	4-4									
	7 0 a. m.	29.96	54	31	29.92	31	31	100	N. E.	32	5.12	469	Stratus	4-4									
Sunday, Dec. 22	10 23 a. m.	29.96	59	31	29.90	31	31	100	N. E.	25	3.12		Stratus	4-4									
	2 0 p. m.	30.00	65	31	29.91	31	31	100	N. E.	30	4.50		Stratus	4-4									
	5 23 p. m.	30.01	69	31	29.91	31	31	100	N. E.	32	5.12		Stratus	4-4							31	28	
	9 0 p. m.	30.03	65	31	29.94	31	31	100	N. E.	34	5.78		Stratus	4-4									Fine rain.
	1 23 a. m.	30.00	57	31	29.93	31	31	100	N. E.	30	4.50		Stratus	4-4					8.20 p. m.				
	7 0 a. m.	30.02	58	31	29.95	31	30	89	N. E.	32	5.12	685	Stratus	4-4						.01			
Monday, Dec. 23	10 23 a. m.	30.04	64	30	29.95	30	30	100	N. E	34	5.78		Stratus	4-4						.01			Light misty rain.
	2 0 p. m.	30.03	66	31	29.93	31	30	89	N. E.	32	5.12		Stratus	4-4									
	5 22 p. m.	30.02	63	31	29.92	31	30	89	N. E.	31	4.80		Stratus	4-1					10.30 a. m.		31	30	
	9 0 p. m.	30.00	67	30	29.90	30	29	89	N. E.	35	6.12		0	0	Cumulus	4-4	N. E.						
	1 23 a. m.	29.97	58	30	29.87	30	29	89	N. E.	39	7.60		0	0	Cumulus	4-4	N. E.						
	7 0 a. m.	29.88	60	29	29.80	29	28	88	N. E.	40	8.00	785	0	0	Cumulus	4-4	N. E.						
	10 23 a. m.	29.86	70	29	29.75	29	28	88	N. E.	39	7.60		0	0	Cumulus	4-4	N. E.						
Tuesday, Dec. 24	2 0 p. m.	29.77	68	28	29.67	28	27	88	N. E.	42	8.82		0	0	Cumulus	4-4	N. E.						
	5 23 p. m.	29.77	69	28	29.67	28	27	88	N. E.	40	8.00		0	0	Cumulus	4-4	N. E.				31	28	
	9 0 p. m.	29.72	64	27	29.63	27	26	88	N.	41	8.40		0	0	Cumulus	3-4	N.						Light auroral glow.

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Meteorological record for the five days ending December 29, 1872.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Wednesday, Dec. 25	1 23 a. m.	29.63	57	27	29.56	27	26	88	N.	35	6.12	....	Stratus..	4-4	0	0	0	.....	.....	....	.....	.....	
	7 0 a. m.	29.53	44	26	29.49	26	25	87	N.	28	3.92	852	0	0	Cumulus	4-4	N.	.....	.....	....	.....	.....	
	10 23 a. m.	29.56	65	26	29.47	26	25	87	N.	24	2.88	....	0	0	Cumulus	4-4	N.	7.30 a. m.	8.10 a. m.	....	.....	.....	Light squalls snow and rain.
	2 0 p. m.	29.54	72	26	29.43	26	25	87	N.	26	3.38	....	0	0	Cumulus	4-4	N.	.....	.....	....	.....	.....	
	5 23 p. m.	29.53	67	26	29.43	26	25	87	N.	24	2.88	....	0	0	Cumulus	4-4	N.	.....	.....	....	28	25	
	9 0 p. m.	29.53	68	25	29.43	25	24	87	N.	22	2.42	....	0	0	Cumulus	3-4	N.	.....	.....	....	.....	.....	Aurora.
Thursday, Dec. 26.	1 23 a. m.	29.49	59	21	29.41	21	20	85	N.	11	.60	....	0	0	Cumulus	4-4	N.	.....	.....	....	.....	.....	
	7 0 a. m.	29.46	54	22	29.40	22	21	86	N. W.	9	.40	556	0	0	Cumulus	4-4	N. W.	.....	.....	....	.....	.....	
	10 23 a. m.	29.47	65	23	29.38	23	22	86	N. W.	6	.18	....	0	0	Cumulus	3-4	N. W.	9.10 a. m.	.....	....	.....	.....	
	2 0 p. m.	29.42	71	25	29.31	25	24	87	N.	4	.08	....	0	0	Cumulus	4-4	N. W.	.....	.....	....	.....	.....	
	5 23 p. m.	29.43	72	22	29.32	22	21	86	N. E.	15	1.12	....	0	0	Cumulus	3-4	.....	.....	.....	.02	26	20	Melted snow.
	9 0 p. m.	29.47	66	21	29.38	21	20	85	N. E.	32	2.42	....	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	
Friday, Dec. 27....	1 23 a. m.	29.53	54	17	29.47	17	16	83	N. W.	24	2.88	....	Nimbus .	4-4	.....	.....	.....	.....	.....	.11	.....	.....	Do.
	7 0 a. m.	29.46	54	22	29.40	22	21	86	N. W.	9	.40	387	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.63	65	19	29.54	19	19	100	N. W.	24	2.88	....	Nimbus .	1-2	Cumulus	1-4	N. W.	.....	.....	.06	.....	.....	Do.
	2 0 p. m.	29.70	71	18	29.59	18	17	84	N.	23	2.64	....	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.69	70	17	29.59	17	16	83	N.	22	2.42	....	Nimbus .	1-2	Cumulus	1-4	N. W.	.....	.....	.02	22	15	Do.
	9 0 p. m.	29.65	57	15	29.58	15	14	82	N. E.	10	.50	....	0	0	Cirrus ..	3-4	N. W.	.....	.....	.....	.....	.....	
Saturday, Dec. 28..	1 23 a. m.	29.65	54	13	29.59	13	12	81	N. E.	9	.40	....	Nimbus .	4-4	.....	.....	.....	.....	.....	.09	.....	.....	Do.
	7 0 a. m.	29.67	59	13	29.59	13	12	81	N. E.	20	2.00	411	0	0	Cirrus ..	4-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.70	70	13	29.60	13	13	100	N.	18	1.62	....	0	0	Cumulus	3-4	N. W.	.....	.....	.04	.....	.....	Do.
	2 0 p. m.	29.73	71	14	29.62	14	13	81	N. E.	27	3.64	....	0	0	Cumulus	1-2	N. E.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.79	66	15	29.69	15	14	82	N. E.	36	6.48	....	Nimbus .	4-4	.....	.....	.....	.....	.....	.09	17	12	Do.
	9 0 p. m.	29.88	68	16	29.78	16	16	100	N. E.	39	7.60	....	Nimbus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
Sunday, Dec. 29....	1 23 a. m.	29.94	59	17	29.86	17	16	83	N.	15	1.12	....	0	0	Cumulus	4-4	N.	.....	.....	.12	.....	.....	
	7 0 a. m.	30.01	45	18	29.97	18	17	84	N.	20	2.00	552	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	Light snow.
	10 23 a. m.	30.06	57	19	29.99	19	18	84	N.	21	2.20	....	Nimbus .	1-2	Cumulus	1-2	N.	.....	.....	.08	.....	.....	
	2 0 p. m.	30.12	72	19	30.01	19	18	84	N.	20	2.00	....	Nimbus .	1-2	Cumulus	1-2	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.15	71	18	30.04	18	17	84	N.	24	2.88	....	0	0	Cumulus	4-4	N.	.....	.....	.02	19	15	
	9 0 p. m.	30.15	70	17	30.04	17	16	83	N.	21	2.20	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	

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Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Monday, Dec. 30...	1 23 a. m.	30.00	55	19	30.02	19	18	84	N.	38	7.22	....	0	0	Cumulus	4-4	N.	.....	.....	.03	....	....	Melted snow.
	7 0 a. m.	30.03	59	19	29.95	19	18	84	N. W.	25	3.12	644	0	0	Cumulus	3-4	N. W.	.....	.....	.....	....	....	Light snow.
	10 23 a. m.	30.01	67	18	29.91	18	17	84	N.	29	4.20	....	0	0	Cumulus	4-4	N.	.....	.....	.01	....	....	
	2 0 p. m.	29.94	63	16	29.85	16	15	82	N.	38	7.22	....	0	0	Cumulus	4-4	N.	.....	.....	.....	....	....	Light snow-squalls.
	5 23 p. m.	29.93	66	12	29.83	12	12	100	N.	34	5.78	....	Nimbus	1-2	Cumulus	1-2	N.	.....	.....	.07	20	12	
	9 0 p. m.	29.91	66	7	29.81	7	6	76	N.	30	4.50	....	Nimbus	4-4	.....	....	.....	.....	.....	.....	....	....	Heavy snow, aurora.
Tuesday, Dec. 31..	1 23 a. m.	29.85	53	4	29.79	4	3	74	N.	24	2.88	....	Nimbus	4-4	.....	....	.....	.....	.....	.08	....	....	
	7 0 a. m.	29.78	62	11	29.69	11	11	100	N.	30	4.50	689	Nimbus	4-4	.....	....	.....	.....	.....	.....	....	....	Heavy snow-squalls.
	10 23 a. m.	29.75	66	13	29.66	13	13	100	N.	31	4.80	....	Nimbus	3-4	Cumulus	1-4	N.	.....	.....	.10	....	....	
	2 0 p. m.	29.72	65	14	29.63	14	13	84	N.	29	4.20	....	Nimbus	1-2	Cumulus	1-2	N.	.....	.....	.....	....	....	
	5 23 p. m.	29.70	66	15	29.61	15	14	82	N.	30	4.50	....	0	0	Cumulus	4-4	N.	.....	.....	.06	15	4	
	9 0 p. m.	29.68	67	16	29.58	16	15.5	91	N.	33	5.44	..	Nimbus	4 4	.....	....	.....	.....	.....	.....	....	....	
Wednesday, Jan. 1.	1 23 a. m.	29.70	65	17	29.59	17	16.5	91	N.	34	5.78	..	0	0	Cumulus	4-4	N.	.....	.....	.03	....	....	
	7 0 a. m.	29.70	65	19	29.61	19	18.5	92	N.	24	2.88	725	0	0	Cumulus	3-4	N.	.....	.....	.....	....	....	
	10 23 a. m.	29.75	65	20	29.66	20	19.5	92	N.	25	3.12	....	0	0	Cumulus	3-4	N.	.....	.....	.02	....	....	
	2 0 p. m.	29.79	67	19	29.69	19	18.5	92	N.	26	3.38	..	0	0	Cumulus	4-4	N.	.....	.....	.....	....	....	Light snow-squalls.
	5 23 p. m.	29.83	65	19	29.74	19	18.5	92	N.	22	2.42	....	0	0	Cumulus	4-4	N.	.....	.....	.01	20	15	
	9 0 p. m.	29.89	61	17	29.81	17	16	83	N.	19	1.80	....	0	0	Cumulus	4-4	N.	.....	.....	.....	....	....	
Thursday, Jan. 2...	1 23 a. m.	29.90	57	15	29.83	15	14	82	N.	21	2.20	....	0	0	Cumulus	4-4	N.	.....	.....	.02	....	....	
	7 0 a. m.	29.97	58	16	29.87	16	15	82	N.	24	2.88	589	Nimbus	1-2	Cumulus	1-2	N.	.....	.....	.....	....	....	Light snow.
	10 23 a. m.	29.97	69	15	29.87	15	14	82	N.	24	2.88	....	Nimbus	1-2	Cumulus	1 2	N.	.....	.....	.01	....	....	
	2 0 p. m.	29.97	65	15	29.88	15	14.5	91	N.	19	1.80	....	Nimbus	1-2	Cumulus	1-2	N.	.....	.....	.....	....	....	
	5 23 p. m.	29.96	64	15	29.89	15	14	82	N.	17	1.44	....	Nimbus	1-2	Cumulus	1-2	N.	.....	.....	.03	19	14	
	9 0 p. m.	30.02	67	15	29.92	15	14.5	91	N.	22	2.42	..	0	0	Cumulus	4-4	N.	.....	.....	.....	....	....	
Friday, Jan. 3	1 23 a. m.	30.01	59	16	29.93	16	15	82	N. E.	21	2.20	..	0	0	Cumulus	1-2	N. E.	.....	10.15 p. m.	.01	....	....	Melted snow.
	7 0 a. m.	30.05	67	18	29.95	18	17	84	N. E.	19	1.80	516	0	0	0	0	0	.....	.....	.....	....	....	
	10 23 a. m.	30.05	67	19	29.95	19	18	84	N. E.	22	2.42	....	0	0	0	0	0	.....	.....	.....	....	....	
	2 0 p. m.	30.04	70	22	29.93	22	21	84	N. E.	22	2.42	....	0	0	0	0	0	.....	.....	.....	....	....	
	5 23 p. m.	30.05	68	21	29.95	21	20	87	N. E.	18	1.62	....	0	0	0	0	0	.....	.....	.....	22	15	
	9 0 p. m.	30.04	70	19	29.95	19	18	84	N. E.	16	1.28	....	0	0	0	0	0	.....	.....	.....	....	....	

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Meteorological record for the five days ending January 8, 1873.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM.		Corrected barometer.	HYGROM.		Relative humidity.	WIND.				LOWER CLOUDS		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	THERM.		Remarks.
			Attached.	Exposed.		Dry bulb.	Wet bulb.		Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from—)	Commen'd.	Ended.		Maximum.	Minimum.	
Saturday, Jan. 4	1 23 a. m.	30.04	55	18	29.97	18	17	84	N. E.	15	1.12	....	0	0	0	0	0	.....	.....	....	....	....	
	7 0 a. m.	30.10	68	70	30.00	17	16	83	N.	16	1.28	431	0	0	0	0	0	.....	.....	....	....	....	
	10 23 a. m.	30.12	67	17	30.02	17	16	83	N.	15	1.12	....	0	0	0	0	0	.....	.....	....	....	....	
	2 0 p. m.	30.13	68	18	30.03	18	17	84	N.	12	.72	....	0	0	0	0	0	.....	.....	....	....	....	
	5 23 p. m.	30.16	70	15	30.05	15	14	82	N.	7	.24	....	0	0	0	0	0	.....	.....	....	21	15	
	9 0 p. m.	30.20	70	15	30.09	15	14	82	N.	7	.24	....	0	0	0	0	0	.....	.....	....	....	....	
Sunday, Jan. 5	1 23 a. m.	30.17	57	15	30.10	15	14.5	91	0	0	0	....	0	0	Cumulus	1-2	N. W.	.....	.....	....	....	....	
	7 0 a. m.	30.21	67	19	30.11	19	18	84	S. W.	1	.01	123	0	0	Cumulus	4-4	N. W.	.....	.....	....	....	....	
	10 23 a. m.	30.21	69	22	30.11	22	21	86	0	0	0	....	0	0	Cumulus	4-4	N. W.	.....	.....	....	....	....	
	2 0 p. m.	30.21	69	25	30.11	25	24	87	W.	5	.12	....	0	0	Cumulus	4-4	N. W.	.....	.....	....	....	....	
	5 23 p. m.	30.20	64	25	30.11	25	24	87	W.	6	.18	....	0	0	Cumulus	4-4	W.	2.35 p. m.	.....	....	25	12	
	9 0 p. m.	30.21	71	26	30.10	26	25	87	S.	2	.02	....	0	0	Cumulus	4-4	W.	.....	.....	....	....	....	
Monday, Jan. 6	1 23 a. m.	30.17	59	26	30.09	26	25	87	S.	3	.04	....	0	0	Cumulus	4-4	.....	.....	.....	.04	....	....	
	7 0 a. m.	30.18	70	28	30.07	28	27	88	S.	2	.02	135	0	0	Cumulus	4-4	W.	.....	.....	....	....	....	
	10 23 a. m.	30.18	70	28	30.07	28	27	88	S.	2	.02	....	0	0	Cumulus	4-4	W.	.....	.....	....	....	....	
	2 0 p. m.	30.17	71	29	30.06	29	28	88	S. W.	3	.04	....	0	0	Cumulus	4-4	S. W.	.....	.....	....	....	....	
	5 23 p. m.	30.17	71	26	30.06	26	25	87	S. W.	1	.01	....	0	0	Cumulus	4-4	S. W.	.....	4.30 p. m.	.00	29	24	
	9 0 p. m.	30.19	70	26	30.08	26	25	87	S. W.	3	.04	....	0	0	Cirrus.	3-4	W.	.....	.....	....	....	....	
Tuesday, Jan. 7	1 23 a. m.	30.16	58	26	30.09	26	26	100	S.	1	.01	....	0	0	Cirrus...	4-4	W.	.....	.....	....	....	....	
	7 0 a. m.	30.16	58	26	30.09	26	25.5	93	E.	17	1.44	63	Stratus	4-4	.....	.....	.....	.....	.....	....	....	....	
	10 23 a. m.	30.24	70	26	30.13	26	25.5	93	E.	27	3.64	....	Stratus	4-4	.....	.....	.....	.....	.....	....	....	....	
	2 0 p. m.	30.25	71	24	30.14	24	23	86	E.	26	3.38	....	Stratus	4-4	.....	.....	.....	.....	.....	....	....	....	
	5 23 p. m.	30.28	67	22	30.18	22	21.5	92	E.	34	5.78	....	Stratus	4-4	.....	.....	.....	.....	.....	....	27	22	
	9 0 p. m.	30 33	66	19	30.23	19	19	100	E.	35	6.12	....	0	0	Cumulus	4-4	E.	.....	.....	....	....	....	
Wednesday, Jan. 8	1 23 a. m.	30.34	52	19	30.28	19	18	84	E.	28	3.92	....	0	0	Cumulus	4-4	E.	.....	.....	....	....	....	
	7 0 a. m.	30.42	57	19	30.35	19	18	84	E.	32	5.12	717	0	0	Cumulus	4-4	E.	.....	.....	....	....	....	
	10 23 a. m.	30.44	66	20	30.34	20	19	85	E.	31	4.80	....	0	0	Cumulus	4-4	E.	.....	.....	....	....	....	
	2 0 p. m.	30.42	67	21	30.32	21	20	85	E.	32	5.12	....	0	0	Cumulus	4-4	E.	.....	.....	....	....	....	
	5 23 p. m.	30.40	66	21	30.30	21	20	85	E.	33	5.44	....	0	0	Cumulus	4-4	E.	.....	.....	....	22	18	
	9 0 p. m.	30.38	63	21	30.29	21	20	85	E.	32	5.12	....	0	0	Cumulus	4-4	E.	.....	.....	....	....	....	

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Day and date of observation.	Time of observation.	Barometer.	Attached.	Exposed.	Corrected barometer.	Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from)—	Commenced.	Ended.	Amount of rain or melted snow.	Maximum.	Minimum.	Remarks.
															Cumulus	4-4	E.	Night.					Few flakes.
	1 23 a. m.	30.31	50	22	30.26	22	21	86	E.	33	5.44		0	0	Cumulus	4-4	E.						
	7 0 a. m.	30.39	63	22	30.19	23	21	86	E.	29	4.30	733	0	0	Cumulus	4-4	E.						
Thursday, Jan. 9	10 23 a. m.	30.38	69	23	30.17	22	21	86	E.	31	4.90	...	0	0	Cumulus	4-4	E.		Night.	.00			
	2 0 p. m.	30.31	58	24	30.14	24	23	86	E.	29	4.50	...	0	0	Cumulus	4-4	E.						
	5 23 p. m.	30.20	60	24	30.12	24	23	86	E.	33	5.44	...	0	0	Cumulus	3-4	E.				24	20	
	9 0 p. m.	30.18	53	23	30.12	23	22	86	E.	32	5.12	...	0	0	Cumulus	3-4	E.						
	1 23 a. m.	30.17	52	23	30.11	18	17	84	E.	36	6.48	...	0	0	Cumulus	3-4	E.						
	7 0 a. m.	30.13	49	15	30.05	13	14.5	91	E.	30	4.50	801	0	0	Cumulus	4-4	E.						
	10 23 a. m.	30.11	67	14	30.09	14	13.5	90	E.	33	5.44	...	0	0	Cumulus	4-4	E.						Light snow.
Friday, Jan. 10	2 0 p. m.	30.08	69	14	30.08	14	13.5	90	E.	32	5.12	...	0	0	Cumulus	4-4	E.				7		
	5 23 p. m.	30.07	60	12	30.07	12	11.5	90	E.	30	4.50	...	0	0	Cumulus	4-4	E.				24	12	
	9 0 p. m.	30.05	70	12	30.05	12	11.5	90	E.	35	6.12	...	0	1	Cumulus	3-4	E.						
	1 23 a. m.	30.06	46	12	30.06	12	11.5	90	E.	32	5.12	...	0	0	Cumulus	3-4	E.						
	7 0 a. m.	30.10	53	12	30.10	12	11.5	90	E.	25	3.12	791	Hazy	0	Cumulus	3-4	E.						
	10 23 a. m.	30.12	69	13	30.12	13	12	90	E.	21	2.20	...	0	0	Cumulus	4-4	E.						
Saturday, Jan. 11	2 0 p. m.	30.13	60	13	30.13	13	12	90	E.	22	2.42	...	0	0	Cumulus	1-2	E.						
	5 23 p. m.	30.16	63	13	30.16	13	12	90	E.	16	1.28	...	0	0	Cumulus	1-2	E.						
	9 0 p. m.	30.18	61	12	30.18	12	11.5	90	E.	15	1.12	...	0	0	Cumulus	1-2	E.						
	1 23 a. m.	30.20	50	13	30.20	13	12.5	90	E.	14	.98	...	0	0	Cumulus	1-4	E.				14	11	
	7 0 a. m.	30.15	54	15	30.09	15	14.5	91	E.	21	2.20	492	0	0	Cumulus	1-4	E.						
	10 23 a. m.	30.13	60	17	30.07	17	16.3	91	E.	23	2.42	...	0	0	Cumulus	1-4	E.						
Sunday, Jan. 12	2 0 p. m.	30.05	56	17	30.00	15	14.3	91	E.	18	1.62	...	0	0	Cumulus	1-2	E.						
	5 23 p. m.	30.07	58	15	29.95	15	14.5	91	E.	21	2.20	...	0	0	Cumulus	3-4	E.				17	11	Aurora.
	9 0 p. m.	30.03	59	15	29.92	14	13.5	90	E.	24	2.88	...	0	0	Cumulus	3-4	E.						
	1 23 a. m.	29.97	48	14	29.85	14	13.5	90	E.	43	6.24	...	Nimbus.	1-4	Cumulus	3-4	E.	11.10 p. m.					
	7 0 a. m.	29.88	42	14	29.80	14	13.5	90	E.	36	6.48	680	0	0	Cumulus	4-4	E.						
	10 23 a. m.	29.85	48	14	29.80	14	13.5	90	E.	38	7.22	...	Nimbus.	1-4	Cumulus	3-4	E.			.01			Light snow.
Monday, Jan. 13	2 0 p. m.	29.86	61	13	29.76	13	12.5	90	E.	39	7.22	...	0	0	Cumulus	3-4	E.						
	5 23 p. m.	29.85	51	13	29.77	13	12.5	90	E.	39	7.60	...	0	0	Cumulus	4-4	E.				15	12	
	9 0 p. m.	29.84	56	11	29.77	11	10.5	89	E.	35	6.12	...	0	0	Cumulus	3-4	E.						

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Meteorological record for the five days ending January 18, 1873.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS Kind.	LOWER CLOUDS Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Tuesday, Jan. 14...	1 23 a. m.	29.79	46		29.75	8	7.5	88	E.	33	5.44	....	0	0	Cumulus.	3-4	E.	.....	.....	.01	....	....	
	7 0 p. m.	29.75	46	9	29.71	9	8.5	89	E.	34	5.78	888	0	0	Cumulus.	3-4	E.	.....	.....	.....	....	....	
	10 23 p. m.	29.76	58	9	29.69	9	8.5	89	E.	35	6.12	....	0	0	Cumulus.	3-4	E.	.....	.....	.01	....	....	
	2 0 p. m.	29.70	55	8	29.63	8	7.5	88	E.	37	6.84	....	Nimbus.	1-4	Cumulus.	3-4	E.	.....	.....	.....	....	....	
	5 23 p. m.	29.65	54	7	29.59	7	6.5	88	E.	36	6.48	....	Nimbus.	1-4	Cumulus.	3-4	E.	.....	.....	.01	13	7	Frozen fog.
	9 0 p. m.	29.63	58	6	29.56	6	5.5	87	E.	35	6.12	....	Nimbus.	1-2	Cumulus.	1-4	E.	.....	.....	.....	....	....	
Wednesday, Jan. 15	1 23 a. m.	29.58	50	6	29.53	6	5.5	87	E.	31	4.80	....	Nimbus.	1-2	Cumulus.	1-4	E.	.....	.....	.02	....	....	
	7 0 a. m.	29.53	50	6	29.48	6	5.5	87	E.	33	5.44	823	Nimbus.	1-2	Cumulus.	1-4	E.	.....	.....	.....	....	....	
	10 23 a. m.	29.53	64	7	29.46	7	6.5	88	E.	32	5.12	....	0	0	Cumulus.	4-4	E.	.....	.....	.02	....	....	
	2 0 p. m.	29.53	67	8	29.43	8	7.5	88	E.	30	4.50	....	Nimbus.	4-4	.....	.....	.....	.....	.....	.....	....	....	
	5 23 p. m.	29.52	64	9	29.43	9	8.5	89	E.	27	3.64	....	Nimbus.	1-4	Cumulus.	3-4	E.	.....	.....	.01	9	5	
	9 0 p. m.	29.51	61	8	29.43	8	7.5	88	E.	24	2.88	....	Nimbus.	1-2	Cumulus.	1-2	E.	.....	.....	.....	....	....	
Thursday, Jan. 16..	1 23 a. m.	29.46	48	8	29.41	8	7.5	88	N. E.	27	3.64	....	0	0	Cumulus.	3-4	N. E.	.....	.....	.....	....	....	
	7 0 a. m.	29.43	53	9	29.37	9	8.5	89	N. E.	30	4.50	688	0	0	Cumulus.	1-2	N. E.	.....	.....	.....	....	....	Flurries of snow.
	10 23 a. m.	29.47	66	9	29.38	9	8.5	89	N. E.	24	3.92	....	0	0	Cumulus.	1-4	N. E.	.....	.....	.01	....	....	
	2 0 p. m.	29.45	60	8	29.37	8	7.5	88	E.	30	4.50	....	Nimbus.	1-4	Cumulus.	1-4	N. E.	.....	.....	.....	....	....	
	5 23 p. m.	29.48	62	6	29.40	6	5.5	87	N. E.	25	3.12	....	0	0	Cumulus.	3-4	N. E.	.....	.....	.01	9	6	
	9 0 p. m.	29.52	60	5	29.44	5	4.5	87	N. E.	28	3.92	....	0	0	Cumulus.	3-4	N. E.	.....	.....	.....	....	....	
Friday, Jan. 17.....	1 23 a. m.	29.53	48	1	29.48	— 1	— 1	84	N. E.	37	6.84	....	Nimbus.	4-4	.....	.....	.....	.....	.....	.01	....	....	
	7 0 a. m.	29.58	44	2	29.54	— 2	— 2.5	83	N. E.	34	5.78	727	Nimbus	4-4	.....	.....	.....	.....	.....	.....	....	....	Impalp'le snow.
	10 23 a. m.	29.66	56	— 3	29.59	— 3	— 4	65	N. E.	34	5.78	....	Nimbus.	1-4	Cumulus.	1-4	N. E.	.....	.....	.02	....	....	
	2 0 p. m.	29.70	62	— 3	29.62	— 3	— 4	65	N. E.	33	5.44	....	Nimbus.	1-2	Cumulus.	1-4	N. E.	.....	.....	.....	....	....	
	5 0 p. m.	29.72	62	— 4	29.64	— 5	— 6	64	N. E.	31	4.80	....	0	0	Cumulus.	1-4	N. E.	.....	5.10 p. m.	.01	6	—5	Melted snow.
	9 0 p. m.	29.85	62	— 6	29.75	— 6	— 7	61	N. E.	26	3.38	....	0	0	Cumulus.	1-4	N. E.	.....	.....	.....	....	....	
Saturday, Jan. 18...	1 23 a. m.	29.85	50	— 9	29.80	— 9	—10	55	N. E.	22	2.42	....	0	0	Cumulus.	1-4	N. E.	.....	.....	.....	....	....	
	7 0 a. m.	29.90	52	—10	29.84	—10	—11	53	N. E.	19	1.80	694	0	0	Cumulus.	1-4	N. E.	.....	.....	.....	....	....	
	10 23 a. m	29.98	62	— 6	29.90	— 6	— 7	61	N. E.	18	1.62	....	0	0	Cumulus.	1-4	N. E.	.....	.....	.....	....	....	
	2 0 p. m.	30.00	68	— 5	29.90	— 5	— 6	92	N. E.	19	1.80	....	0	0	0	0	.....	.....	.....	.....	....	....	
	5 23 p. m.	30.04	60	— 5	29.96	— 5	— 6	62	N. E.	14	.98	....	0	0	Cumulus.	1-4	N. E.	.....	.....	.....	—4	—11	
	9 0 p. m.	30.06	62	— 5	29.92	— 5	— 6	62	N. E.	11	.60	....	0	0	0	0	.....	.....	.....	.....	....	....	Aurora.

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STATION: ISLAND OF SAINT PAUL,

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from)—	RAIN OR SNOW. Comm'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Sunday, Jan. 19	1 23 a. m.	30.12	48	−5	30.07	−5	−6	62	N. E.	10	.50	....	0	0	0	0	0	.....	.....	....	....	....	
	7 a. m.	30.12	47	−5	30.07	−5	−6	62	N. E.	8	.32	368	0	0	0	0	0	.....	.....	....	....	....	
	10 23 a. m.	30.20	68	−1	30.10	−1	−2	68	N. E.	7	.24	....	0	0	0	0	0	.....	.....	....	....	....	
	2 p. m.	30.20	67	5	30.10	5	4	75	E.	6	.18	....	0	0	0	0	0	.....	.....	....	....	....	
	5 23 p. m.	30.22	64	4	30.13	4	3	74	E.	7	.24	....	0	0	0	0	0	.....	.....	....	6	−6	
	9 p. m.	30.28	64	9	30.19	9	8.5	89	E.	12	.72	....	0	0	Cumulus	4-4	E.	.....	.....	....	....	....	
Monday, Jan. 20	1 23 a. m.	30.25	53	10	30.19	10	9.5	89	E.	26	3.38	....	0	0	Cumulus	4-4	E.	9.15 p. m	.....	....	....	....	
	7 a. m.	30.24	49	13	30.19	13	12.5	90	E.	30	4.50	327	0	0	Cumulus	4-4	E.	.....	.....	....	....	....	
	10 23 a. m.	30.24	58	15	30.17	15	14.5	91	E.	30	4.50	....	0	0	Cumulus	4-4	E.	.....	Night	.01	....	....	
	2 p. m.	30.23	61	16	30.15	16	15.5	91	E.	27	3.64	....	0	0	Cumulus	3-4	E.	.....	.....	....	....	....	
	5 23 p. m.	30.20	64	14	30.14	14	13.5	90	E.	33	5.44	....	0	0	Cumulus	4-4	E.	.....	.....	....	16	4	
	9 p. m.	30.17	60	12	30.09	12	11.5	90	E.	33	5.44	....	0	0	0	0	0	.....	.....	....	....	....	Aurora at 10.30 p. m.
Tuesday, Jan. 21	1 23 a. m.	30.13	52	13	30.07	13	12.5	90	E.	34	5.78	....	0	0	Cirrus ..	1-4	S. W.	.....	.....	....	....	....	
	7 a. m.	30.08	46	15	30.04	15	14	82	E.	32	5.12	753	0	0	Cirrus ..	1-2	S. W.	.....	.....	....	....	....	
	10 23 a. m.	30.11	58	15	30.04	15	14.5	91	E.	31	4.80	....	0	0	Cirrus ..	1-2	S. W.	.....	.....	....	....	....	
	2 p. m.	30.08	58	15	30.01	15	14.5	91	E.	31	4.80	....	0	0	Cirrus ..	3-4	S. W.	.....	.....	....	....	....	
	5 23 p. m.	30.10	64	16	30.01	16	15	82	E.	34	5.78	....	0	0	Cirrus ..	3-4	S. W.	.....	.....	....	16	11	
	9 p. m.	30.10	62	17	30.01	17	16	83	E.	35	6.12	....	0	0	Cirrus ..	1-4	S. W.	.....	.....	....	....	....	
Wednesday, Jan. 22	1 23 a. m.	30.07	52	15	30.01	15	14	82	E.	28	3.92	....	0	0	Cirrus ..	1-4	S. W.	.....	.....	....	....	....	
	7 a. m.	30.02	55	15	30.01	15	14.5	91	E.	24	2.88	782	0	0	Cumulus	1-4	S. W.	.....	.....	....	....	....	
	10 23 a. m.	30.12	63	16	30.03	16	15.5	91	E.	23	2.42	....	0	0	Cirrus ..	1-4	S. W.	.....	.....	....	....	....	
	2 p. m.	30.12	66	19	30.02	19	18.5	92	E.	20	2.00	....	0	0	Cumulus	4-4	E.	.....	.....	....	....	....	
	5 23 p. m.	30.12	61	19	30.04	19	18	84	E.	21	2.20	....	0	0	Cumulus	4-4	E.	.....	.....	....	19	14	
	9 p. m.	30.14	65	20	30.05	20	19	85	E.	25	3.12	....	0	0	Cumulus	1-2	E.	.....	.....	....	....	....	
Thursday, Jan. 23	1 23 a. m.	30.04	52	19	30.02	19	18	84	E.	27	3.64	....	0	0	0	0	0	.....	.....	....	....	....	
	7 a. m.	29.97	50	20	29.92	20	19	85	E.	34	5.78	588	0	0	0	0	0	.....	.....	....	....	....	
	10 23 a. m.	30.02	70	20	29.91	20	19	85	E.	36	6.48	....	0	0	0	0	0	.....	.....	....	....	....	
	2 p. m	29.94	61	20	29.86	20	18	70	E.	35	6.12	....	0	0	0	0	0	.....	.....	....	....	....	
	5 23 p. m.	29.88	62	18	29.79	18	17	84	E.	37	6.84	....	0	0	0	0	0	.....	.....	....	20	18	
	8 p. m.	29.85	65	19	29.76	19	18	84	E.	32	5.12	....	0	0	0	0	0	.....	.....	....	....	....	Auroral haze.

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Meteorological record for the five days ending January 28, 1873.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Friday, Jan. 24	1 23 a. m.	29.76	50	18	29.71	18	17	84	E.	26	3.38	....	0	0	0	0	0	.....	.....	....	....	....	
	7 0 a. m.	29.69	55	14	29.62	14	13	81	E.	25	3.12	796	0	0	0	0	0	.....	.....	....	....	....	
	10 23 a. m.	29.66	66	15	29.57	15	14	82	E.	27	3.64	...	0	0	0	0	0	.....	.....	....	....	....	
	2 0 p. m.	29.59	67	15	29.49	15	14.5	91	E.	28	3.92	....	0	0	0	0	0	.....	.....	....	....	....	
	5 23 p. m.	29.55	69	15	29.45	15	14.5	91	E.	24	2.88	....	0	0	0	0	0	.....	.....	....	19	13	
	9 0 p. m.	29.51	68	15	29.41	15	14.5	91	E.	24	2.88	....	0	0	Cumulus	1-4	E.	.....	.....	....	....	....	
Saturday, Jan. 25	1 23 a. m.	29.44	53	14	29.38	14	13.5	90	E.	21	2.20	....	0	0	Cumulus	1-2	E.	.....	.....	....	....	....	
	7 0 a. m.	29.41	60	16	29.33	16	15.5	91	N. E.	16	1.28	501	Stratus	4-4	.....	.....	.....	.....	.....	....	....	....	
	10 23 a. m.	29.42	67	16	29.32	16	15	82	N.	21	2.20	....	0	0	Cumulus	1-4	N.	.....	.....	....	....	....	
	2 0 p. m.	29.43	69	15	29.33	15	14	82	N.	26	3.38	....	0	0	0	0	0	.....	.....	....	....	....	
	5 23 p. m.	29.50	72	14	29.39	14	13	81	N.	34	5.78	....	0	0	0	0	0	.....	.....	....	16	14	
	9 0 p. m.	29.55	65	11	29.46	11	10	79	N.	35	6.12	....	0	0	0	0	0	.....	.....	....	....	....	
Sunday, Jan. 26	1 23 a. m.	29.63	51	6	29.58	6	5	76	N.	41	8.40	....	0	0	0	0	0	.....	.....	....	....	....	
	7 0 a. m.	29.82	50	0	29.77	0	−1	69	N.	35	6.12	684	0	0	Cumulus	4-4	N.	.....	.....	....	....	....	
	10 23 a. m.	30.00	66	−1	29.90	−1	−2	68	N.	30	4.50	....	0	0	Cumulus	1-4	N.	.....	.....	....	....	....	
	2 0 p. m.	30.03	69	0	29.93	0	−1	69	N.	26	3.38	....	0	0	0	0	0	.....	.....	....	....	....	
	5 23 p. m.	30.11	61	−2	30.02	−2	−3	67	N.	27	3.64	....	0	0	Cumulus	1-4	N.	.....	.....	....	14	−2	
	9 0 p. m.	30.23	63	−3	30.14	−3	−4	65	N.	27	3.64	....	0	0	Cumulus	1-4	N.	.....	.....	....	....	....	Aurora.
Monday, Jan. 27	1 23 a. m.	30.27	50	−7	30.22	−7	−8	59	N.	24	2.88	....	0	0	0	0	0	.....	.....	....	....	....	
	7 0 a. m.	30.40	47	−8	30.35	−8	−8.5	70	N. E.	2	.02	599	0	0	0	0	0	.....	.....	....	....	....	
	10 23 a. m.	30.49	63	−4	30.40	−4	−4.5	82	N. E.	1	.01	....	0	0	Cirrus ..	1-4	N. W.	.....	.....	....	....	....	
	2 0 p. m.	30.50	66	8	30.40	8	7.5	88	N. E.	9	.40	....	0	0	Cirrus ..	4-4	N. W.	.....	.....	....	....	....	
	5 23 p. m.	30.46	68	13	30.36	13	12.5	90	S. E.	24	2.88	....	Stratus .	4-4	.....	.....	.....	.....	.....	....	13	−9	
	9 0 p. m.	30.40	68	21	30.30	21	21	100	S. E.	34	5.78	....	Nimbus .	4-4	.....	.....	.....	.....	.....	....	....	....	Heavy snow; aurora.
Tuesday, Jan. 28	1 23 a. m.	30.42	54	32	30.35	32	32	100	S.	20	4.20	....	Stratus .	1-2	Cirrus ..	1-4	.....	7.15 p. m.	11.45 p. m.	.17	....	....	Melted snow.
	7 0 a. m.	30.53	57	30	30.46	30	29	89	S.	17	1.44	420	0	0	0	0	0	.....	.....	....	....	....	
	10 23 a. m.	30.59	65	31	30.49	31	30	89	S.	19	1.80	...	0	0	Cirrus ..	1-4	W.	.....	.....	....	....	....	
	2 0 p. m.	30.55	68	33	30.45	33	32	89	S. W.	40	8.00	....	Stratus .	4-4	.....	.....	.....	.....	.....	....	....	....	
	5 23 p. m.	30.52	62	33	30.43	33	32	89	S.	31	4.80	...	Stratus .	4-4	.....	.....	.....	2.40 p. m.	5.40 p. m.	.01	34	13	Rain.
	9 0 p. m.	30.53	69	33	30.42	33	32	89	S. W.	40	8.00	....	Stratus .	4-4	.....	.....	.....	.....	.....	....	....	....	

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Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Wednesday, Jan. 29.	1 23 a. m.	30.51	55	33	30.44	33	32	89	S.W.	41	8.40	...	.....	4-4	.....	...	.....	.....	.....	...	...	...	
	7 0 a. m.	30.55	50	33	30.50	33	32	89	S.W.	34	5.78	763	Hazy	.....	Cumulus	4-4	S.W.	.....	.....	...	...	...	
	10 23 a. m.	30.57	60	33	30.49	33	32	89	S.W.	39	7.60	....	Hazy	.....	Cumulus	4-4	S.W.	.....	.....	...	...	...	
	2 0 p. m.	30.57	69	33	30.46	33	32.5	94	S.	38	7.22	....	Hazy	.....	Cumulus	4-4	S.	.....	.....	...	...	...	
	5 23 p. m.	30.55	64	33	30.46	33	32	89	S.	35	6.12	...	Hazy	.....	Cumulus	3-4	S.	.....	.....	...	33	33	
	9 0 p. m.	30.52	62	32	30.44	32	31	89	S.	34	5.78	...	Hazy	.....	0	0	0	.....	.....	...	...	...	
Thursday, Jan. 30 ..	1 23 a. m.	30.49	57	31	30.42	31	30.5	94	S. E.	20	2.00	...	Hazy	.....	Cirrus ..	1-2	S.	.....	.....	...	...	...	
	7 0 a. m.	30.41	61	32	30.33	32	31.5	94	S.	12	.72	760	Stratus	1-4	Cirrus ..	3-4	S.	.....	.....	...	...	...	
	10 23 a. m.	30.38	69	32	30.27	32	31	89	S. E.	38	3.92	....	Stratus	1-2	Cirrus ..	1-2	S.	.....	.....	...	...	...	
	2 0 p. m.	30.23	70	33	30.12	33	32	89	S. E.	25	3.12	....	Stratus	1-2	Cirrus ..	1-2	S.	.....	.....	...	...	...	
	5 23 p. m.	30.15	70	33	30.04	33	32	89	S. E.	25	3.12	...	Nimbus	4-4	.....	...	.....	12.55 p. m.	.....	.01	34	31	Melted snow.
	9 0 p. m.	30.07	66	33	29.96	33	32.5	94	S. E.	12	.72	....	Nimbus	4-4	.....	...	.....	.....	.....	...	...	...	Light rain.
Friday, Jan. 31.....	1 23 a. m.	29.99	57	33	29.92	33	32.5	94	E.	8	.32	...	.....	4-4	.....	...	.....	.....	.....	.12	...	...	Rain measure.
	7 0 a. m.	29.91	65	32	29.82	32	32	100	E.	4	.08	333	Fog	4-4	.....	...	.....	.....	.....	...	...	...	
	10 23 a. m.	29.82	70	32	29.77	32	32	100	E.	10	.50	....	Stratus	4-4	.....	...	.....	.....	.....	.13	...	...	Melted snow.
	2 0 p. m.	29.84	69	31	29.74	31	31	100	E.	14	.98	....	Stratus	4-4	.....	...	.....	.....	.....	...	...	...	
	5 23 p. m.	29.81	68	31	29.71	31	31	100	E.	15	1.12	....	Stratus	4-4	.....	...	.....	.....	.....	.14	33	31	
	9 0 p. m.	29.71	65	30	29.62	30	30	100	E.	16	1.28	....	Fog	4-4	.....	...	.....	.....	.....	...	...	...	
Saturday, Feb. 1 ...	1 23 a. m.	29.63	56	31	29.56	31	30	89	E.	16	1.28	....	Stratus	4-4	.....	...	.....	.....	.....	.04	...	...	Freezing rain.
	7 0 a. m.	29.55	60	31	29.47	31	30	89	S.W.	14	.98	318	0	0	Cumulus	1-4	S.W.	.....	.....	...	...	...	
	10 23 a. m.	29.56	66	32	29.47	32	31	89	S.W.	22	2.42	...	Nimbus	4-4	.....	...	.....	.....	.....	.02	...	...	
	2 0 p. m.	29.53	66	32	29.44	32	31	89	S.W.	27	3.64	...	0	0	Cumulus	4-4	S.W.	.....	.....	...	...	...	Occas'nal snow showers.
	5 23 p. m.	29.52	63	32	29.43	32	31	89	S.W.	20	2.00	....	0	0	Cumulus	4-4	W.	.....	.....	.01	33	30	
	9 0 p. m.	29.58	66	31	29.49	31	30	89	W.	18	1.62	..	Stratus	1-4	Cirrus ..	1-4	W.	.....	.....	...	...	...	
Sunday, Feb. 2	1 23 a. m.	29.63	52	28	29.57	28	27.5	94	N. W.	16	1.28	...	0	0	.....	4-4	.....	.....	Night..	.01	...	...	
	7 0 a. m.	29.63	54	25	29.57	25	24.5	93	N.	9	.40	435	0	0	Cumulus	4-4	N.	.....	.....	...	...	...	
	10 23 a. m.	29.64	66	25	29.55	25	24.5	93	N.	11	.60	....	0	0	Cumulus	4-4	N.	.....	.....	...	...	...	
	2 0 p. m.	29.52	65	22	29.43	22	22	100	E.	19	1.80	....	Stratus	4-4	.....	...	.....	.....	.....	...	...	...	
	5 23 p. m.	29.38	68	22	29.28	22	22	100	E.	33	5.44	....	Nimbus	4-4	.....	...	.....	3.30 p. m.	.....	.03	32	22	
	9 0 p. m.	29.27	65	21	29.18	21	21	100	E.	34	5.78	....	Stratus	4-4	.....	...	.....	.....	.....	...	...	...	

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Meteorological record for the five days ending February 7, 1873.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS Kind.	LOWER CLOUDS Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Monday, Feb. 3	1 23 a. m.	29.15	54	22	29.09	22	22	100	E.	33	5.44	...	Nimbus	4-4	.....	...	.....	.....	.....	.14	.....	.....	Melted snow.
	7 0 a. m.	29.13	63	23	29.05	23	23	100	E.	21	2.20	673	Nimbus	4-4	.....	...	.....	.....	.....	...	.....	.....	Fine rain.
	10 23 a. m.	29.16	68	23	29.06	23	22.5	93	E.	16	1.28	...	Nimbus	4-4	.....	...	.....	.....	.....	.17	.....	.....	Rain measure.
	2 0 p. m.	29.16	69	25	29.06	25	24.5	93	N. E.	6	.18	...	Nimbus	4-4	.....	...	.....	.....	.....	...	.....	.....	Light snow.
	5 23 p. m.	29.17	70	24	29.07	23	22	86	N.	8	.32	...	0	0	Cumulus	4-4	N. W.	.....	.....	.08	26	21	Melted snow.
	9 0 p. m.	29.24	68	22	29.14	22	21	86	N.	20	2.00	...	0	0	Cumulus	4-4	N.	.....	.....	...	.....	.....	
Tuesday, Feb. 4	1 23 a. m.	29.35	48	17	29.30	17	16	83	N.	12	.72	...	0	0	Cumulus	4-4	N. W.	.....	.....	.02	.....	.....	
	7 0 a. m.	29.42	53	13	29.36	13	12	81	N.	16	1.28	421	0	0	Cumulus	4-4	.....	.....	.....	...	.....	.....	
	10 23 a. m.	29.47	65	14	29.38	14	13	81	N.	12	.72	...	0	0	Cumulus	4-4	N.	.....	.....	.01	.....	.....	
	2 0 p. m.	29.48	62	15	29.40	15	14.5	91	N.	4	.08	...	0	0	Cumulus	4-4	N.	.....	.....	...	.....	.....	Light snow.
	5 23 p. m.	29.48	68	14	29.38	14	13	81	N.	7	.24	...	0	0	Cumulus	4-4	.....	.....	.....	.02	23	13	
	9 0 p. m.	29.37	65	15	29.28	15	14.5	91	E.	6	.18	...	Stratus	4-4	.....	...	.....	.....	.....	...	.....	.....	
Wednesday, Feb. 5	1 23 a. m.	29.25	54	20	29.19	20	19.5	92	S. E.	22	2.42	...	Stratus	4-4	.....	...	.....	.....	.....	.01	.....	.....	
	7 0 a. m.	29.06	56	28	28.99	28	28	100	S. E.	21	2.20	296	Nimbus	4-4	.....	...	.....	.....	.....	...	.....	.....	Heavy snow.
	10 23 a. m.	28.93	64	30	28.84	30	29.5	94	0	0	0	...	Stratus	4-4	.....	...	.....	.....	.....	.21	.....	.....	
	2 0 p. m.	29.09	68	20	28.99	20	19	85	N.	31	4.80	...	0	0	Cumulus	1-2	N.	.....	.....	...	.....	.....	
	5 23 p. m.	29.15	70	12	29.05	12	11	80	N.	32	5.12	...	0	0	Cumulus	4-4	N	.....	.....	.02	32	12	
	9 0 p. m.	29.20	70	11	29.10	11	10	79	N.	22	2.42	...	0	0	Cumulus	3-4	N.	.....	.....	...	.....	.....	
Thursday, Feb. 6	1 23 a. m.	29.29	52	9	29.21	9	8	78	N.	16	1.28	...	0	0	Cumulus	4-4	N.	.....	.....	.01	.....	.....	
	7 0 a. m.	29.49	54	8	29.43	8	7	77	N.	11	.60	714	0	0	Cumulus	4-4	N.	.....	.....	...	.....	.....	Light snow.
	10 23 a. m.	29.60	70	9	29.50	9	7	56	N.	11	.60	...	0	0	Cumulus	4-4	N.	.....	.....	...	.....	.....	
	2 0 p. m.	29.65	69	9	29.55	9	8	78	N.	13	.84	...	0	0	Cumulus	4-4	.....	.....	.....	...	.....	.....	
	5 23 p. m	29.69	69	9	29.59	9	8	78	N. E.	14	.98	...	Stratus	3-4	Cirrus	1-4	N. W.	.....	.....	.03	12	8	
	9 0 p. m.	29.78	64	10	29.69	10	9	79	N. E.	15	1.12	...	Nimbus	4-4	.....	...	.....	.....	.....	...	.....	.....	
Friday, Feb. 7	1 23 a. m.	29.79	50	7	29.74	7	6.5	88	E.	21	2.20	...	Nimbus	4-4	.....	...	.....	.....	.....	.17	.....	.....	Melted snow.
	7 0 a. m.	29.87	56	5	29.80	5	4.5	87	E.	28	3.92	375	Nimbus	4-4	.....	...	.....	.....	.....	...	.....	.....	
	10 23 a. m.	29.92	59	7	29.84	7	6.5	88	E.	32	5.12	...	Nimbus	4-4	.....	...	.....	.....	.....	.16	.....	.....	
	2 0 p. m.	29.85	63	9	29.76	9	8.5	89	E.	34	5.78	...	Nimbus	4-4	.....	...	.....	.....	.....	...	.....	.....	
	5 23 p. m.	29.82	63	10	29.73	10	9.5	89	E.	34	5.78	...	Nimbus	4-4	.....	...	.....	.....	.....	.31	10	4	Do.
	9 0 p. m.	29.73	69	12	29.63	12	12	100	E.	33	5.44	...	Nimbus	4-4	.....	...	.....	.....	.....	...	.....	.....	

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Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft	Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	Direction. (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow	THERM. Maximum.	THERM. Minimum.	Remarks.
Saturday, Feb. 8	1 23 a. m.	29.49	50	13	29.44	13	13	100	E.	37	6.84	83	Nimbus	4-4	*					.16			Melted snow.
	7 0 a. m.	29.18	57	13	29.11	13	13	100	E.	49	12.06		Nimbus	4-4									Heavy snow.
	10 23 a. m.	29.09	63	13	29.01	13	13	100	E.	54	14.56		Nimbus	4-4						.38			Terrific storm.
	2 0 p. m.	28.99	64	13	28.89	13	13	100	E.	63	21.62		Nimbus	4-4									Do.
	5 23 p. m.	28.93	64	13	28.84	13	13	100	E.	61	18.60		Nimbus	4-4						.53	14	10	Do.
	9 0 p. m.	28.95	64	11	28.86	11	10.5	89	E.	52	14.52		Nimbus	4-4									Heavy snow.
	1 23 a. m.	28.97	48	7	28.92	7	6	76	N.E.	37	6.84		Nimbus	4-4						.32			
	7 0 a. m.	29.03	47	4	28.99	4	3	74	N.E.	41	8.40	115	Nimbus	1-4									Fine snow.
	10 23 a. m.	29.11	66	5	29.02	5	4	75	N.E.	46	10.56		Nimbus	1-4	Cirrus	1-2	N.W.			.04			
Sunday, Feb. 9	2 0 p. m.	29.12	61	5	29.04	5	4	75	N.E.	51	13.00		Nimbus	4-4	Cirrus	3-4	N.W.			.02	13	2	Do.
	5 23 p. m.	29.18	55	2	29.12	2	1	71	N.	47	11.04		Stratus	1-4	Cirrus	3-4	N.W.						
	9 0 p. m.	29.30	64	4	29.21	4	5	64	N.	33	5.44		0	0	0	0	0						
	1 23 a. m.	29.33	44	10	29.31	10	11	53	N.	30	4.50		0	0	0	0	0						Light snow.
	7 0 a. m.	29.51	51	12	29.46	12	13	49	N.	23	3.02	82	0	0	0	0	0						
	10 23 a. m.	29.57	67	8	29.47	8	9	57	N.	26	3.38		Nimbus	1-4	0	0	0						Do.
Monday, Feb. 10	2 0 p. m.	29.59	64	8	29.50	8	9	57	N.	24	2.83		0	0	0	0	0						
	5 23 p. m.	29.65	66	8	29.56	8	9	57	N.	17	1.44		0	0	0	0	0						
	9 0 p. m.	29.73	69	8	29.63	8	9	57	N.	21	2.50		0	0	0	0	0						
	1 23 a. m.	29.82	53	7	29.73	7	8	59	N.	20	2.00		0	0	Cumulus	1-4	N.						
	7 0 a. m.	29.93	47	4	29.86	4	5	64	N.	18	1.62	566	0	0	Cumulus	4-4	N.						
	10 23 a. m.	30.02	64	3	29.93	3	4	65	N.	21	2.20		0	0	Cumulus	3-4	N.						
Tuesday, Feb. 11	2 0 p. m.	30.05	68	2	29.95	2	3	67	N.	21	2.20		0	0	Cumulus	1-4	N.				3	8	
	5 21 p. m.	30.09	68	5	29.99	5	6	62	N.	23	2.64		0	0	0	0	0						
	9 0 p. m.	30.12	68	8	30.02	8	9	57	N.	16	1.25		0	0	0	0	0						
	1 21 a. m.	30.09	48	10	30.04	10	11	54	N.	18	1.62	412	0	0	0	0	0						
	7 0 a. m.	30.12	46	10	30.05	10	11	53	N.	17	1.44		0	0	0	0	0						
	10 23 a. m.	30.20	69	8	30.10	8	9	57	N.	13	.74		0	0	Cumulus	1-4	N.						
Wednesday, Feb. 12	2 0 p. m.	30.33	70	7	30.12	7	8	59	N.	12	.72		0	0	Cumulus	1-4	N.				8	11	
	5 23 p. m.	30.24	67	6	30.13	6	8	57	N.	23	2.64		0	0	Cumulus	1-4	N.						
	9 0 p. m.	30.25	66	6	30.15	6	8	57	N.						0	0							

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Meteorological record for the five days ending February 17, 1873.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Thursday, Feb. 13	1 23 a. m.	30.22	42	—8	30.19	—8	—9	57	N.	15	1.12	....	0	0	0	0	0	.....	.....	....	....	....	
	7 0 a. m.	30.25	43	—6	30.22	—8	—9	57	N.	16	1.28	310	0	0	0	0	0	.....	.....	....	....	....	
	10 23 a. m.	30.35	69	—5	30.24	—5	—6	62	N. W.	14	.98	....	0	0	0	0	0	.....	.....	....	....	....	
	2 0 p. m.	30.33	68	—1	30.23	—1	—1.5	84	N. W.	9	.40	....	0	0	Cumulus	3-4	N. W.	.....	.....	....	....	....	
	5 23 p. m.	30.32	66	0	30.22	0	—0.5	85	E.	1	.01	....	0	0	Cirrus ..	4-4	N. W.	4.10 p. m.	.....	....	1	—8	
	9 0 p. m.	30.24	58	0	30.20	0	—0.5	85	E.	11	.60	....	Nimbus.	4-4	.....	....	.....	.....	.....	....	....	....	
Friday, Feb. 14	1 23 a. m.	30.19	41	1	30.16	1	1	100	E.	20	2.00	....	Nimbus.	4-4	.....	....	.....	.....	.....	.08	....	....	Melted snow.
	7 0 a. m.	30.13	44	1	30.09	1	1	100	E.	28	3.92	323	Nimbus.	4-4	.....	....	.....	.....	.....	....	....	....	Light snow.
	10 23 a. m.	30.17	65	2	30.08	2	2	100	E.	31	4.80	....	0	0	Cirrus ..	3-4	S. W.	.....	.....	.03	....	....	
	2 0 p. m.	30.08	68	5	29.98	5	5	100	E.	33	5.44	....	0	0	Cirrus ..	3-4	S. W.	.....	.....	....	....	....	
	5 23 p. m.	29.98	66	3	29.88	3	2.5	86	E.	38	7.22	....	Nimbus	1-4	Cirrus ..	3-4	S. W.	.....	.....	.05	5	—1	
	9 0 p. m.	29.85	63	6	29.76	6	6	100	E.	42	8.82	....	Nimbus	4-4	.....	....	.....	.....	.....	....	....	....	
Saturday, Feb. 15	1 23 a. m.	29.56	48	10	29.51	10	10	100	E.	66	21.75	....	Nimbus	4-4	.....	....	.....	.....	.....	.11	....	....	
	7 0 a. m.	29.18	46	14	29.14	14	13.5	93	E.	49	12.00	923	Nimbus	4-4	.....	....	.....	.....	.....	....	....	....	Heavy snow.
	10 23 a. m.	29.05	58	17	28.98	17	17	100	E.	46	10.58	....	Nimbus	4-4	.....	....	.....	.....	.....	.08	....	....	
	2 0 p. m.	28.84	69	21	28.74	21	20.5	92	E.	32	5.12	....	Nimbus	4-4	.....	....	.....	.....	.....	....	....	....	
	5 23 p. m.	28.79	65	31	28.70	31	30	89	S. W.	68	23.13	....	Nimbus	1-2	Cirrus ..	1-2	S.	.....	.....	.12	31	3	Melted snow.
	9 0 p. m.	28.93	63	31	28.85	31	30	89	S. W.	52	13.52	....	Nimbus	4-4	.....	....	.....	.....	.....	....	....	....	
Sunday, Feb. 16	1 23 a. m.	29.03	55	30	28.97	30	29	89	S. W.	33	5.44	....	.....	4-4	.....	....	.....	.....	.....	.19	....	....	
	7 0 a. m.	29.16	53	31	29.10	31	30	89	S. W.	26	3.38	999	Stratus	1-2	Cumulus	1-4	S. W.	.....	.....	....	....	....	Snow flurries.
	10 23 a. m.	29.20	65	33	29.11	33	32	89	S. W.	18	1.62	....	Stratus	3-4	Cirrus ..	1-4	S. W.	.....	.....	.05	....	....	
	2 0 p. m.	29.23	68	34	29.13	34	33	89	S. W.	14	.98	....	Stratus	1-2	Cirrus ..	1-2	S. W.	.....	.....	....	....	....	Threatening.
	5 23 p. m.	29.18	73	31	29.07	31	30.5	94	S. E.	21	2.20	....	Nimbus	4-4	.....	....	.....	.....	.....	.03	34	29	
	9 0 p. m.	29.02	70	33	28.92	33	32.5	94	S. E.	18	1.62	....	Nimbus	4-4	.....	....	.....	.....	.....	....	....	....	Rain.
Monday, Feb. 17	1 23 a. m.	28.86	58	33	28.79	33	33	100	S. E.	22	2.42	....	Nimbus	4-4	.....	....	.....	.....	.....	.11	....	....	Melted snow and rain.
	7 0 a. m.	28.64	62	33	28.56	32	32	100	S. E.	23	2.64	522	Nimbus.	4-4	.....	....	.....	.....	.....	....	....	....	Rain.
	10 23 a. m.	28.54	65	32	28.45	32	31.5	94	S. E.	17	1.44	....	Nimbus.	4-4	.....	....	.....	.....	.....	.07	....	....	Melted snow and rain.
	2 0 p. m.	28.54	69	30	28.44	30	29	89	W.	42	8.82	....	0	0	Cumulus	3-4	W.	.....	.....	....	....	....	Light snow.
	5 23 p. m.	28.65	67	27	28.56	27	26	89	S. W.	34	5.78	....	Nimbus.	1-4	Cumulus	3-4	S. W.	.....	.....	.13	33	27	
	9 0 p. m.	28.76	66	33	28.67	33	32	94	S. W.	43	9.24	....	0	0	Cumulus	1-2	S. W.	.....	.....	....	....	....	

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Meteorological R...

STATION: ISLA...

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
	1 23 a. m.	28.85	56	25	28.78	25	24	87	S.W.	25	3.12	....	0	0	Cumulus	3-4	S.W.	.....	.....	.04	.....	.....	Melted snow.
	7 0 a. m.	29.03	61	25	28.95	25	24	87	S.W.	22	2.42	626	Stratus	1-4	Cumulus	1-4	S.W.	.....	.....	.....	.....	.....	Flurries of hail and snow.
Tuesday, Feb. 18...	10 23 a. m.	29.11	70	27	29.01	27	26	88	S.W.	28	3.92	....	0	0	0	0	0	.....	.....	.02	.....	.....	
	2 0 p. m.	29.16	69	28	29.06	28	27	88	S.W.	24	2.88	....	Stratus	1-4	Cumulus	1-2	S.W.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.20	68	27	29.13	27	26	88	S.W.	22	2.42	....	Nimbus	1-4	Cumulus	3-4	S.W.	.....	.....	.02	29	24	
	9 0 p. m.	29.24	67	25	29.14	25	24	87	S.W.	21	2.20	....	0	0	Cumulus	1-4	S.W.	.....	9.20 p. m.	.01	.....	.....	
	1 23 a. m.	29.20	54	25	29.14	25	24.5	93	S.	5	.12	....	0	0	Cumulus	3-4	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	28.93	56	29	28.86	29	29	100	S.E.	44	9.68	459	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	28.76	70	29	28.66	29	29	100	S.E.	71	25.25	....	Nimbus	4-4	.....	.....	.....	9.20 a. m.	.....	.05	.....	.....	Melted snow.
Wednesday, Feb. 19	2 0 p. m.	28.42	71	30	28.32	30	30	100	S.E.	35	6.12	....	Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Heavy snow.
	5 23 p. m.	28.36	69	30	28.26	30	29.5	94	S.	21	2.20	....	Stratus	1-2	Cirrus	1-2	S.	.....	.....	.31	31	24	
	9 0 p. m.	28.40	64	29	28.31	29	28	88	S.W.	26	3.38	....	Nimbus	3-4	Cumulus	1-4	S.W.	.....	.....	.....	.....	.....	
	1 23 a. m.	28.48	55	28	28.42	28	27	88	W.	19	1.80	....	0	0	.....	4-4	.....	.....	.....	.03	.....	.....	
	7 0 a. m.	28.64	66	29	28.55	29	28	88	W.	23	2.64	401	0	0	Cumulus	1-2	W.	.....	.....	.....	.....	.....	
Thursday, Feb. 20..	10 23 a. m.	28.73	62	28	28.65	28	27	88	W.	32	5.12	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	.....	
	2 0 p. m.	28.91	66	27	28.82	27	26	88	W.	27	3.64	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.11	68	25	29.01	25	24	87	W.	28	3.92	....	Stratus	1-2	Cirrus	1-2	W.	.....	.....	.01	30	25	
	9 0 p. m.	29.28	67	25	29.18	25	24	87	W.	31	4.80	....	0	0	0	0	0	.....	.....	.....	.....	.....	Auroral glow.
	1 23 a. m.	29.33	57	27	29.26	27	26	88	S.W.	15	1.12	....	Stratus	1-4	Cumulus	1-4	S.W.	.....	.....	.02	.....	.....	
	7 0 a. m.	29.46	68	28	29.36	28	27	88	S.W.	39	7.60	568	0	0	Cumulus	3-4	S.W.	.....	.....	.....	.....	.....	
Friday, Feb. 21	10 23 a. m.	29.54	69	28	29.44	28	27	88	S.W.	31	4.80	....	0	0	Cumulus	1-4	S.W.	.....	.....	.01	.....	.....	
	2 0 p. m.	29.62	72	28	29.51	28	27	88	S.W.	37	6.84	....	0	0	Cumulus	1-4	S.W.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.76	66	28	29.66	28	27	88	S.W.	43	9.24	....	Stratus	1-4	Cumulus	1-4	S.W.	.....	5.00 p. m.	.07	29	25	Melted snow.
	9 0 p. m.	29.95	65	30	29.86	30	29.5	94	S.W.	38	7.22	....	0	0	Cumulus	1-4	S.W.	.....	.....	.....	.....	.....	
	1 23 a. m.	30.14	56	30	30.07	33	32.5	94	S.W.	28	3.92	....	Nimbus	4-4	.....	.....	.....	11.50 p. m.	.....	.03	.....	.....	Rain measure.
	7 0 a. m.	30.22	70	33	30.11	33	32.5	94	S.W.	35	6.12	858	Stratus	1-2	Cirrus	1-2	S.W.	.....	.....	.....	.....	.....	Rain.
Saturday, Feb. 22 ..	10 23 a. m.	30.27	70	33	30.16	33	32	89	S.W.	37	6.84	....	Stratus	1-2	Cirrus	1-2	S.W.	.....	7.10 a. m.	.16	.....	.....	
	2 0 p. m.	30.34	70	33	30.23	33	32	89	S.W.	35	6.12	....	Haze	....	0	0	0	.....	.....	.....	.....	.....	
	5 23 p. m.	30.45	68	32	30.35	33	31.5	94	S.W.	31	4.80	....	0	0	0	0	0	.....	.....	.....	34	28	
	9 0 p. m.	30.51	69	32	30.40	32	31.5	94	S.	22	2.42	....	Haze	....	0	0	0	.....	.....	.....	.....	.....	Aurora.

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Meteorological record for the five days ending February 27, 1873.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM.		Corrected barometer.	HYGROM.			WIND.				LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	THERM.		Remarks.
			Attached.	Exposed.		Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from—)	Commenced.	Ended.		Maximum.	Minimum.	
Sunday, Feb. 23	1 23 a. m	30. 42	59	27	30. 34	27	26. 5	94	S.	8	.32	..	0	0	Cirrus ..	1-2	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	30. 24	70	29	30. 15	29	28. 5	94	E.	39	7. 60	582	0	0	Cirrus ..	4-4	.....	9.10 a. m.	.....	.....	.....	.....	
	10 23 a. m.	30. 07	68	29	29. 97	29	29	100	E.	40	8. 00	...	Nimbus	4-4	.....	.....	.....	.....	.....	.08	.....	.....	Melted snow.
	2 0 p. m.	29. 85	65	29	29. 76	29	29	100	E.	41	8. 40	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29. 74	71	30	29. 63	30	30	100	E.	36	6. 48	....	Nimbus.	4-4	.....	.....	.....	.....	.....	.14	32	26	Melted snow and rain.
Monday, Feb. 24	9 0 p. m.	29. 72	70	31	29. 62	31	31	100	E.	16	1. 28	....	Fog.....	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	1 23 a. m.	29. 80	61	31	29 72	31	31	100	S.	4	.06	..	Nimbus	4-4	.....	.....	.....	.....	.....	.22	.....	.....	Rain measure.
	7 0 a. m.	30. 00	70	32	29. 89	32	31. 5	94	W.	2	.02	464	Fog.....	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Light rain.
	10 23 a. m.	30. 08	70	33	29. 97	33	33	100	W.	15	1. 12	...	Fog ...	4-4	.....	.....	.....	.....	7.30 a. m.	.02	.....	.....	
	2 0 p. m.	30. 16	71	32	30. 05	32	31. 5	94	W.	18	1. 62	...	Stratus .	4-4	.....	.....	.....	.....	.....	.....	33	30	
	5 23 p. m	30. 23	69	32	30. 13	32	31. 5	94	W.	10	.50	...	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	9 0 p. m.	30. 28	63	30	30. 14	30	29. 5	94	S. E.	6	.18	..	0	0	Cirrus ..	1-4	.....	.....	.....	.....	.....	.....	
	1 23 a. m.	30. 16	59	32	30. 1	32	32	100	S. E.	16	1. 28	...	0	0	Cirrus ..	1 4	.....	.....	.....	.....	.....	.....	
Tuesday, Feb. 25	7 0 a. m	30. 04	65	33	29. 97	33	32. 5	94	S.	23	2. 64	325	Nimbus.	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Rain.
	10 23 a. m.	30. 07	69	33	29. 97	33	32. 5	94	S.	31	4. 80	...	Stratus .	4-4	.....	.....	.....	.....	Night...	6.50 a. m.	.13	.....	Rain measure.
	2 0 p. m.	30. 15	67	34	30. 05	34	33	89	W.	24	2. 18	...	0	0	0	0	0	.....	.....	.....	.....	.....	
	5 23 p. m.	30. 21	66	32	30. 11	32	31. 5	94	W.	22	2. 42	...	0	0	Cumulus	1-4	W.	.....	.....	.....	34	29	
	9 0 p. m.	30. 31	67	31	30. 21	31	30	89	W.	24	2. 88	...	0	0	Cumulus	1 4	W.	.....	.....	.....	.....	.....	
	1 23 a. m.	30. 35	57	31	30. 25	31	30	89	W.	22	2. 42	....	0	0	Cumulus	1-4	W.	.....	.....	.....	.....	.....	
	7 0 a. m.	30. 42	66	31	30. 32	31	30	89	W.	26	3. 38	579	0	0	Cumulus	1-4	W.	.....	.....	.....	.....	.....	
Wednesday, Feb. 26	10 23 a. m.	30. 45	71	31	30. 34	31	30	89	W	27	3. 64	....	0	0	0	0	0	D'g night	D'g night	.02	.....	.....	
	2 0 p. m.	30. 44	69	32	30. 33	32	31	89	S.W.	23	3. 92	....	0	0	Cirrus ..	1-2	W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30. 37	65	32	30. 27	32	31	89	S.	29	4. 20	....	Nimbus.	4-4	.....	.....	.....	3.40 p. m.	.....	.02	33	30	
	9 0 p. m.	30. 26	64	31	30. 17	31	30. 5	94	S.	18	1. 62	....	Nimbus.	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Heavy snow; aurora.
Thursday, Feb. 27	1 23 a. m.	30. 16	62	31	30. 07	31	30. 5	94	S.W.	8	.32	...	Nimbus.	4-4	.....	.....	.....	.....	.....	.23	.....	.....	Melted snow.
	7 0 a. m.	29. 94	63	27	29. 85	27	26	88	N. W.	26	3. 38	414	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m	29. 97	69	26	29. 87	26	25	87	N. W.	21	2. 20	....	0	0	Cumulus	4-4	N. W.	.....	Night...	.09	.....	.....	
	2 0 p. m.	29. 98	70	27	29. 87	27	26	88	N. W.	33	5. 44	....	0	0	Cumulus	1-4	N. W.	.....	.....	.....	.....	.....	
	5 23 p. m	30. 00	69	25	29. 90	25	24	87	N W.	27	3. 64	....	0	0	0	0	0	.....	.....	.....	32	24	
	9 0 p. m.	29. 93	68	25	29. 89	25	24	87	N.	45	10. 12	...	Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Heavy snow.

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Day and date of observation.	Time of observation.	BAROMETER. Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per h ur.	WIND. Pressure per sq. ft.	WIND. Deficiency.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow	THERM. Maximum.	THERM. Minimum.	Remarks.
Friday, Feb. 28.	1 23 a. m.	29.98	57	54	29.91	24	23	86	N.	30	4.50	722	Nimbus.	4-4	Cumulus	1-2	N.	8.50 a. m.	.....	.00	.....	.....	Melted snow.
	7 0 a. m.	30.02	71	68	29.91	22	21	86	N.	38	7.22	.....	Nimbus	1-2	Cumulus	1-4	N.	.....	.....	.....	.....	.....	Light snow.
	10 23 a. m.	30.02	71	68	29.92	21	20	85	N.	37	6.84	.....	Nimbus	3-4	Cumulus	1-4	N.	.....	.....	.....	05	.....	
	2 0 p. m.	30.04	71	69	29.93	20	19	85	N.	42	8.82	.....	Nimbus	3-4	Cumulus	1-4	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.11	65	63	30.02	16	15	82	N. W.	35	6.12	.....	0	0	Cumulus	4-4	N. W.	.....	.....	.04	25	16	
	9 0 p. m.	30.11	63	62	30.02	15	14	82	N.	33	6.12	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	1 23 a. m.	30.07	55	53	30.00	15	14	82	N.	27	3.64	821	0	0	Cumulus	4-4	N. W.	.....	9.20 a. m.	.02	.....	.....	Do.
	7 0 a. m.	30.03	63	62	29.94	16	15	82	N. W.	24	2.86	.....	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.02	61	59	29.94	14	13	81	N. W.	26	3.38	.....	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	
Saturday, Mar. 1.	2 0 p. m.	30.04	64	62	29.95	14	13	81	N. W.	26	3.38	.....	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.04	64	63	30.00	10	8	58	N.	24	2.84	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	9 0 p. m.	30.09	63	62	30.00	5	3	50	N.	19	1.60	.....	0	0	Cumulus	3-4	N.	.....	.....	.....	16	5	
	1 23 a. m.	30.15	54	53	30.05	3	2	73	N.	20	2.00	.....	0	0	Cumulus	1-4	N.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.21	55	54	30.11	—2	—3	67	N.	20	2.00	.....	0	0	Cumulus	1-4	N.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.31	70	69	30.20	—5	—6	62	N.	29	4.20	583	0	0	0	0	0	.....	.....	.....	.....	.....	
Sunday, Mar. 2.	2 0 p. m.	30.33	71	70	30.23	—3	—4	65	N.	31	4.80	.....	0	0	Cumulus	3-4	N.	10.05 a. m.	10.30 a. m.	.00	.....	.....	Snow inappreciable.
	5 23 p. m.	30.37	66	65	30.27	—3	—4	67	N.	28	3.92	.....	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	.....	
	9 0 p. m.	30.41	66	64	30.31	—1	—2	63	N.	27	3.61	.....	0	0	Cumulus	1-2	N.	.....	.....	.....	—1	—7	
	1 23 a. m.	30.37	53	51	30.31	—1	—2	68	N.	25	3.12	.....	0	0	Cumulus	1-4	N.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.39	61	59	30.30	—1	—2	68	N. E.	20	2.00	.....	0	0	0	0	0	.....	.....	.....	.....	.....	
	10 23 a. m.	30.40	69	67	30.31	—1	—3	71	N.	6	.32	.....	0	0	0	0	0	.....	.....	.....	.....	.....	
Monday, Mar. 3.	2 0 p. m.	30.36	70	69	30.25	10	9	79	E.	3	.01	.....	0	0	Cirrus	3-4	N. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.31	64	63	30.22	11	10	79	S. E.	1	.01	.....	Stratus.	1-2	Cirrus	1-2	N. W.	.....	.....	.....	11	—3	
	9 0 p. m.	30.19	64	63	30.10	13	12.5	90	S. E.	10	.50	.....	0	0	Cirrus	4-4	N. W.	.....	.....	.....	.....	.....	
	1 23 a. m.	30.11	56	55	30.04	19	18.5	92	S. E.	14	.98	.....	0	0	Cirrus	4-4	.....	11.20 p. m.	11.50 p. m.	.02	.....	.....	Melted snow.
	7 0 a. m.	30.04	65	64	29.95	27	26	83	N. W.	18	1.62	253	0	0	0	0	0	.....	.....	.....	.....	.....	
	10 23 a. m.	30.02	64	62	29.93	29	28	83	N. W.	20	2.00	.....	Stratus	1-2	Cirrus	1-4	N. W.	10.05 a. m.	.....	.01	.....	.....	
Tuesday Mar. 4.	2 0 p. m.	30.00	65	64	29.91	31	29	79	N. W.	16	1.28	.....	0	0	Cumulus	1-4	N. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.01	63	62	29.92	30	29	88	N. W.	18	1.62	.....	Stratus	3-4	Cirrus	1-4	N. W.	.....	.....	.....	31	11	
	9 0 p. m.	29.99	63	62	29.87	29	29	93	N.	22	2.42	.....	Stratus	3-4	Cirrus	1-4	N. W.	.....	.....	.....	.....	.....	Light snow.

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Meteorological record for the five days ending March 9, 1873.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS Kind.	LOWER CLOUDS Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from —)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Wednesday, Mar. 5	1 23 a. m.	29.98	56	22	29.91	22	21	86	N.	26	3.38	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.04	66	16	29.94	16	15	82	N. W.	32	5.12	484	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.11	71	15	30.00	15	14	82	N. W.	39	4.50	....	Nimbus.	3-4	Cumulus	1-4	N. W.	.....	11.15 a. m.	.01	.....	.....	Light snow.
	2 0 p. m.	30.09	63	15	30.00	15	14	82	N. W.	26	3.38	....	0	0	Cumulus	1-4	N. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.11	71	14	30.00	14	12	73	N. W.	30	4.50	....	0	0	Cumulus	1-4	N. W.	.....	.....	.....	29	13	
	9 0 p. m.	30.12	69	13	30.02	13	11	62	N.	35	6.12	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
Thursday, Mar. 6	1 23 a. m.	30.10	53	8	30.04	8	7	77	N.	33	5.44	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.16	69	2	30.06	2	1	71	N.	32	5.12	695	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.20	67	3	30.10	3	2	73	N.	34	5.78	....	0	0	Cumulus	4-4	N.	9.40 a. m.	.....	.....	.....	.....	
	2 0 p. m.	30.16	60	3	30.08	3	2	73	N.	31	4.80	....	Nimbus.	1-4	Cumulus	3 4	N.	.....	.....	.....	.....	.....	Flurries snow.
	5 23 p. m.	30.14	58	1	30.07	1	0	70	N.	38	7.22	....	Nimbus.	1-4	Cumulus	1-4	N.	.....	.....	.01	14	1	Melted snow.
	9 0 p. m.	30.17	60	1	30.09	1	0	70	N.	44	9.68	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
Friday, Mar. 7	1 23 a. m.	30.13	51	0	30.07	0	— 0.5	85	N.	43	9.24	....	0	0	Cumulus	4-4	N.	.....	.....	.01	.....	.....	
	7 0 a. m.	30.10	59	1	30.02	1	0.5	85	N.	42	8.82	928	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	Light snow at intervals.
	10 23 a. m.	30.13	65	0	30.04	0	— 0.5	85	N.	41	8.40	....	Nimbus.	1-4	Cumulus	3-4	N.	.....	.....	.02	.....	.....	
	2 0 p. m.	30.10	70	1	29.99	1	0.5	85	N.	46	10.58	....	Nimbus	1-2	Cumulus	1 2	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.06	69	2	29.98	2	1	71	N.	44	9.68	....	Nimbus	1-2	Cumulus	1-2	N.	.....	.....	.01	2	—1	
	9 0 p. m.	30.10	70	—1	29.99	—1	— 2	68	N.	32	5.12	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
Saturday, Mar. 8	1 23 a. m.	30.06	51	0	30.00	0	— 1	69	N.	30	4.50	....	Nimbus.	4-4	.....	.....	.....	.....	.....	.01	.....	.....	
	7 0 a. m.	30.05	54	2	29.99	2	1	71	N.	37	6.84	912	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	Do.
	10 23 a. m.	30.07	65	4	29.98	4	3	74	N.	41	8.40	....	Nimbus.	3-4	Cumulus	1-4	N.	.....	.....	.01	.....	.....	
	2 0 p. m.	30.02	67	5	29.92	5	4	75	N.	28	7.22	....	Nimbus.	1-4	Cumulus	3-4	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.98	63	5	29.89	5	4	75	N.	35	6.12	....	0	0	Cumulus	4-4	N.	.....	.....	.01	5	—2	
	9 0 p. m.	29.96	68	4	29.86	4	3	74	N.	33	5.44	....	Nimbus.	1-2	Cumulus	1-2	N.	.....	.....	.....	.....	.....	
Sunday, Mar. 9	1 23 a. m.	29.89	52	1	29.83	1	0	70	N.	25	3.12	....	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	.....	
	7 0 a. m.	29.85	54	—2	29.79	—2	— 3	67	N.	21	2.20	738	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	Snow flurries.
	10 23 a. m.	29.81	66	1	29.77	1	0	70	N.	21	2.20	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	2 0 p. m.	29.82	71	2	29.71	2	1	71	N.	22	2.42	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.76	70	2	29.65	2	1	71	N.	17	1.44	....	0	0	Cumulus	4-4	N.	.....	4.30 p. m.	.00	3	—2	
	9 0 p. m.	29.72	68	0	29.62	0	— 1	69	N.	15	1.12	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	

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Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Correct. barom. elev.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	WIND. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Monday, Mar. 10.	1 23 a. m.	29.64	53	—1	29.56	—1	—2	68	N.	13	.84	...	0	0	0	0	N.	...	...	...	...	...	Light snow.
	7 0 a. m.	29.63	63	—1	29.54	—1	—2	68	N.	15	1.12	...	0	0	0	0	N.	...	...	...	...	...	
	10 23 a. m.	29.53	71	3	29.43	3	1	46	N.	23	3.12	...	0	0	Cumulus	1-2	N.	...	...	.01	5	—2	
	2 0 p. m.	29.66	69	5	29.56	5	4	75	N.	26	3.38	...	Nimbus.	1-2	Cirrulus	4-4	N.	...	...	...	...	...	
	5 23 p. m.	29.67	66	3	29.58	3	3	73	N.	24	2.88	...	0	0	Cumulus	4-4	N.	...	...	...	...	...	
	9 0 p. m.	29.71	67	5	29.61	5	4	75	N.	23	2.64	...	0	0	Cumulus	4-4	N.	...	...	...	...	...	
Tuesday, Mar. 11.	1 23 a. m.	29.75	55	5	29.68	5	4	75	N.	21	2.20	516	0	0	Cumulus	4-4	N.	...	...	...	...	...	Do
	7 0 a. m.	29.88	68	6	29.79	6	5	76	N.	24	2.88	...	0	0	Cumulus	4-4	N.	...	...	...	...	...	
	10 23 a. m.	29.93	69	6	29.85	6	5	76	N.	25	3.12	...	0	0	Cumulus	3-4	N.	...	...	...	...	...	
	2 0 p. m.	29.98	64	7	29.89	7	6	76	N.	26	3.38	...	0	0	Cumulus	3-4	N.	...	...	...	...	...	
	5 23 p. m.	30.03	68	5	29.93	5	4	75	N.	22	2.42	...	0	0	Cumulus	4-4	N.	...	...	...	7	3	Do
	9 0 p. m.	30.10	63	4	30.01	5	4	74	N.	20	2.03	...	0	0	Cumulus	4-4	N.	...	...	...	...	...	
Wednesd'y, Mar. 12	1 23 a. m.	30.14	58	5	30.07	5	4	87	N.	17	1.44	...	0	0	Cumulus	4-4	N.	...	...	.01	...	...	Do
	7 0 a. m.	30.24	65	6	30.15	6	4.5	76	N.	16	1.28	504	Nimbus.	1-4	Cumulus	3-4	N.	...	...	...	...	...	
	10 23 a. m.	30.26	66	7	30.16	7	5	76	N.	16	1.28	...	0	0	Cumulus	4-4	N.	...	...	...	...	...	
	2 0 p. m.	30.26	69	6	30.15	8	6	76	N.	12	.72	...	0	0	Cumulus	4-4	N.	...	...	...	...	...	
	5 23 p. m.	30.18	63	8	30.13	8	7	78	N.	11	.60	...	0	0	Cumulus	4-4	N.	...	...	.01	9	2	
	9 0 p. m.	30.20	64	6	30.13	6	5	77	N.	14	.98	...	0	0	Cumulus	4-4	N.	...	...	...	...	...	
Thursday, Mar. 13.	1 23 a. m.	30.19	54	5	30.16	5	4	75	N.	12	.72	329	0	0	Cumulus	4-4	N.	...	...	...	...	...	
	7 0 a. m.	30.16	66	5	30.15	5	4	75	N.	15	1.12	...	0	0	Cumulus	4-4	N.	...	...	...	...	...	
	10 23 a. m.	30.23	71	7	30.15	7	6	76	N.	13	.84	...	0	0	Cumulus	4-4	N.	...	...	...	...	...	
	2 0 p. m.	30.21	66	6	30.11	6	5	76	N.	14	.98	...	0	0	Cumulus	4-4	N.	...	...	...	...	...	
	5 23 p. m.	30.22	63	2	30.11	2	1	71	N.	24	2.28	...	0	0	Cumulus	4-4	N.	...	...	...	8	1	
	10 23 p. m.	30.13	63	0	30.11	2	—0.5	85	N.	24	2.28	...	0	0	Cumulus	4-4	N.	...	...	...	...	...	
Friday, Mar. 14.	1 23 a. m.	30.14	52	—2	30.13	0	—2.5	83	N.	21	2.30	473	0	0	Cumulus	4-4	N.	...	...	...	...	...	
	7 0 a. m.	30.07	62	0	30.06	1	—0.5	85	N.	20	2.10	...	0	0	Cumulus	4-4	N.	...	...	.01	...	...	Do
	10 23 a. m.	30.06	66	1	30.05	3	0.5	80	N. E.	21	2.20	...	0	0	Cumulus	4-4	N.	...	...	...	...	...	
	2 0 p. m.	30.15	66	3	30.05	3	2.5	86	N. E.	23	2.64	...	0	0	Cumulus	4-4	N. E.	...	...	...	...	...	
	5 23 p. m.	30.11	65	3	30.02	3	2.5	86	N. E.	19	1.60	...	0	0	Cumulus	3-4	N. E.	...	...	.01	3	—2	Melted snow.
	9 0 p. m.	30.09	63	2	30.00	2	1.5	85	N. E.	17	1.44	...	Nimbus.	1-4	Cumulus	3-4	N. E.	...	...	...	...	...	

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Meteorological record for the five days ending March 19, 1873.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS Kind.	LOWER CLOUDS Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Saturday, Mar. 15	1 23 a. m.	30.02	50	0	29.97	0	−0.5	85	N. E.	18	1.62	...	0	0	Cumulus	4-4	N. E.	.....	.....	.02	...	...	
	7 0 a. m.	29.91	55	−1	29.84	−1	−1.5	84	N. E.	23	2.64	429	Nimbus.	1-4	Cumulus	3-4	N. E.	.....	.....	.....	...	...	Light snow.
	10 23 a. m.	29.88	49	1	29.83	1	0.5	85	N. E.	20	2.00	....	0	0	Cumulus	4-4	N. E.	.....	.....	.01	...	...	
	2 0 p. m.	29.78	69	4	29.78	4	3.5	86	N. E.	25	3.12	....	Nimbus	1-4	Cumulus	3-4	N. E.	.....	.....	.....	...	...	
	5 23 p. m.	29.86	68	0	29.76	0	−0.5	85	N. E.	24	2.78	....	Nimbus.	1-4	Cumulus	3-4	N. E.	.....	.....	.01	5	−2	
	9 0 p. m.	29.88	67	−2	29.78	−2	−2.5	83	N. E.	22	2.42	....	0	0	Cumulus	4-4	N. E.	.....	.....	.....	...	...	
Sunday, Mar. 16	1 23 a. m.	29.82	52	−4	29.76	−4	−4.5	82	N.	24	2.78	...	0	0	Cumulus	1-2	N.	.....	.....	.....	...	...	
	7 0 a. m.	29.83	64	−6	29.74	−6	−6.5	81	N.	23	2.64	585	0	0	0	0	0	.....	.....	.....	...	...	Frost; snow.
	10 23 a. m.	29.85	71	−1	29.74	−1	−1.5	84	N.	24	2.88	....	0	0	0	0	0	.....	10.30 a. m.	.01	...	...	Do.
	2 0 p. m.	29.81	69	2	29.71	2	1.5	85	N.	24	2.88	....	0	0	0	0	0	.....	.....	.....	...	...	
	5 23 p. m.	29.80	70	0	29.69	0	−0.5	85	N.	18	1.62	....	0	0	0	0	0	.....	.....	.....	2	−6	
	9 0 p. m.	29.82	67	−2	29.72	−2	−2.5	83	N.	20	2.00	....	0	0	Cumulus	1-4	N.	.....	.....	.....	...	...	
Monday, Mar. 17	1 23 a. m.	29.80	61	−3	29.72	−3	−3.5	83	N.	17	1.44	...	0	0	0	0	0	.....	.....	.....	...	...	
	7 0 a. m.	29.81	53	−3	29.75	−3	−3.5	83	N.	24	2.88	528	0	0	0	0	0	.....	.....	.....	...	...	
	10 23 a. m.	29.88	70	1	29.77	1	0.5	85	N.	26	3.38	....	0	0	0	0	0	.....	.....	.....	...	...	
	2 0 p. m.	29.90	68	4	29.80	4	3	74	N.	23	2.64	....	0	0	Cumulus	3-4	N.	.....	.....	.....	...	...	Light snow.
	5 23 p. m.	29.94	70	4	29.83	4	3.5	86	N.	20	2.00	....	0	0	Cumulus	4-4	N.	.....	.....	.....	5	−4	
	9 0 p. m.	30.01	64	3	29.92	3	2.5	86	N.	20	2.00	....	0	0	Cumulus	1-4	N.	.....	.....	.....	...	...	
Tuesday, Mar. 18	1 23 a. m.	30.05	54	1	29.99	1	0.5	85	N.	16	1.28	...	0	0	0	0	0	.....	.....	.....	...	...	
	7 0 a. m.	30.17	59	2	30.09	2	1	71	N.	14	.98	501	0	0	0	0	0	.....	.....	.....	...	...	
	10 23 a. m.	30.23	70	4	30.12	4	3	74	N.	17	1.44	....	0	0	0	0	0	.....	.....	.....	...	...	
	2 0 p. m.	30.26	71	9	30.15	9	8	78	N.	14	.98	....	0	0	0	0	0	.....	.....	.....	...	...	
	5 23 p. m.	30.24	66	8	30.14	8	7.5	88	E.	16	1.28	....	0	0	0	0	0	.....	.....	.....	10	−1	
	9 0 p. m.	30.25	65	5	30.16	5	4.5	87	E.	18	1.62	....	0	0	0	0	0	.....	.....	.....	...	...	
Wednesday, Mar. 19	1 23 a. m.	30.20	56	4	30.13	4	3.5	86	E.	22	2.42	...	0	0	0	0	0	.....	.....	.....	...	...	
	7 0 a. m.	30.00	52	8	29.94	8	7.5	88	E.	30	4.50	511	0	0	Cirrus ..	4-4	S. W.	.....	.....	.....	...	...	
	10 23 a. m.	29.94	61	11	29.86	11	10.5	89	E.	35	6.12	....	0	0	Cirrus ..	4-4	S. W.	.....	.....	.....	...	...	
	2 7 p. m.	29.85	62	15	29.76	15	15	100	E.	43	9.24	....	0	0	Cirrus ..	4-4	S. W.	.....	.....	.....	...	...	
	5 23 p. m.	29.61	52	17	29.55	17	17	100	E.	67	22.45	....	Nimbus	4-4	.....	.....	...	...	3.15 p. m.	.....	.01	17	4	
	9 0 p. m.	29.51	68	18	29.41	18	18	100	E.	52	13.52	....	Nimbus.	4-4	.....	.....	...	...	.....	.....	.....	...	...	Furious storm of wind and

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Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Corrected barom. eter.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction (moving from—)	Common "Cs."	Ended.	Amount or melted	Maximum.	Minimum.	Remarks.
Thursday, Mar. 20	1 23 a. m.	29.42	54	91	29.36	31	30.5	94	E.	36	6.48	89	Nimbus	4-4	.....	.....	.....	.....	.....	.54	.....	.....	Melted snow.
	7 0 a. m.	29.51	58	31	29.44	31	30.5	94	S.E.	16	1.28		Stratus	1-4	Cirrus	1-4	S.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.58	67	33	29.48	33	32.5	94	S.	17	1.44		Stratus	1-2	Cirrus	1-2	S.	.....	Night	.04	.....	.....	
	2 0 p. m.	29.53	71	33	29.53	33	32.5	94	S.	18	1.63		Stratus	1-2	Cirrus	1-4	S.	.....	.....	.....	34	17	
	5 23 p. m.	29.58	70	33	29.58	32	31.5	94	S.	13	.84		Hazy		0	0	0	.....	.....	.....	.....	.....	
	9 0 p. m.	29.76	70	32	29.76	32	31.5	94	S.	7	.24		0		0	0	0	.....	.....	.....	.....	.....	
Friday, Mar. 21	1 23 a. m.	29.74	68	30	29.74	30	29.5	93	S.	6	.18		Fog	0	0	0	0	.....	.....	.....	.....	.....	
	7 0 a. m.	29.82	70	30	29.82	30	29	100	S.E.	7	.24	277	Fog	1-2	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	29.84	70	30	29.84	30	29	100	S.E.	7	.24		Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	2 0 p. m.	29.86	70	32	29.86	32	29.5	94	S.E.	2	.02		Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29.84	70	32	29.84	32	31.5	94	S.	6	.18		Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	9 0 p. m.	29.77	70	32	29.77	30	29.5	94	S.E.	7	.24		Nimbus	4-4	Cirrus	3-4	S.W.	.....	9.10 p. m.	.03	33	25	
Saturday, Mar. 22	1 23 a. m.	29.91	68	31	29.84	31	30.5	94	S.W.	5	.12	183	0	0	Cirrus	4-4	S.W.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.02	71	31	29.91	31	30.5	94	S.	6	.18		0	0	Cirrus	4-4	S.W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.04	66	33	29.94	33	32	89	S.	7	.24		0	0	Cirrus	4-4	S.W.	.....	.....	.....	.....	.....	
	2 0 p. m.	30.03	67	34	29.93	34	33	89	S.	8	.33		0	0	Cirrus	1-2	S.W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.02	67	31	29.92	31	30	89	S.E.	8	.33		0	0	Cirrus	4-4	S.W.	.....	.....	.....	35	29	
	9 0 p. m.	30.04	69	31	29.94	31	30.5	94	S.E.	11	.60		0	0	Cirrus	4-4	S.W.	.....	.....	.....	.....	.....	
Sunday, Mar. 23	1 23 a. m.	29.99	68	32	29.89	28	27.5	94	S.E.	23	2.64	285	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	29.82	67	30	29.72	30	30.5	94	S.E.	27	3.64		Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	29.74	68	31	29.64	31	30.5	94	S.E.	33	5.41		0	0	Cirrus	4-4	S.W.	.....	.....	.....	31	27	
	2 0 p. m.	29.59	62	30	29.51	30	29.5	94	S.E.	39	7.60		Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29.46	66	29	29.37	29	28.5	94	S.E.	38	7.25		Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Heavy snow and storm.
	9 0 p. m.	29.32	63	29	29.23	29	29	100	S.E.	36	6.48	869	Nimbus	4-4	.....	.....	.....	7.20 p. m.	.....	.31	.....	.....	
Monday, Mar. 24	1 23 a. m.	29.16	60	29	29.10	29	29	100	S.E.	8	.32		Hazy	...	Cirrus	1-4	S.	.....	.....	.....	.....	.....	
	7 0 a. m.	29.16	67	30	29.06	30	29	89	S.W.	4	.08		Hazy	...	Cirrus	1-4	S.	.....	1.45 a. m.	.02	.....	.....	
	10 23 a. m.	29.19	68	33	29.09	34	33	89	S.E.	3	.04		Hazy	...	Cirrus	1-4	S.	.....	.....	.....	34	28	
	2 0 p. m.	29.20	68	31	29.10	31	30.5	94	S.E.	3	.04		Fog	...	Cirrus	1-4	S.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.25	70	28	29.15	28	27.5	94	E.	1	.01		Hazy	...	Cirrus	1-4	.....	.....	.....	.....	.....	.....	
	9 0 p. m.																						

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Meteorological record for the five days ending March 29, 1873.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
	1 23 a. m.	29.26	57	26	29.19	26	26	100	E.	1	.00	....	Fog.....	4-4	.....	.....	.....	.....	.....	...	...	...	
	7 0 a. m.	29.31	64	28	29.22	28	28	100	E.	9	.40	102	Fog.....	4-4	.....	.....	.....	.....	.....	...	...	...	
Tuesday, Mar. 25...	10 23 a. m.	29.34	68	29	29.24	29	28.5	94	E.	11	.60	....	Stratus..	4-4	.....	.....	.....	8.55 a. m.	.....	.02	...	...	Wind E. N.E.
	2 0 p. m.	29.31	70	31	29.21	31	30.5	94	E.	15	1.12	....	Stratus..	4-4	.....	.....	.....	.....	.....	...	...	...	Melted snow.
	5 23 p. m.	29.27	69	29	29.17	29	28.5	94	E.	16	1.28	....	Stratus..	4-4	.....	.....	.....	.....	.....	...	32	25	Wind E. N. E.
	9 0 p. m.	29.23	71	26	29.12	26	25.5	93	E.	20	2.00	....	Stratus..	4-4	.....	.....	.....	.....	.....	...	...	...	Snow.
	1 23 a. m.	29.17	58	22	29.10	22	22	100	E.	23	2.64	....	Nimbus ..	4-4	.....	.....	.....	.....	.....	.08	...	...	Melted snow.
	7 0 a. m.	29.14	66	18	29.05	18	18	100	E.	23	2.64	383	Stratus..	4-4	.....	.....	.....	.....	.....	...	...	...	Light snow.
Wednesday, Mar. 26	10 23 a. m.	29.21	67	18	29.11	18	17.5	91	E.	22	2.42	....	Stratus..	2-4	Cirrus ..	2-4	W.	.....	.....	.08	...	...	Melted snow.
	2 0 p. m.	29.26	69	18	29.16	18	17	84	N. E.	24	2.88	....	Stratus..	2-4	Cirrus ..	2-4	W.	.....	.....	...	...	...	Light snow.
	5 23 p. m.	29.31	62	11	29.23	11	10	79	N. E.	18	1.62	....	Stratus..	1-4	Cirrus ..	1-4	W.	.....	2.10 p. m.	....	29	11	
	9 0 p. m.	29.41	71	6	29.30	6	5	76	N. E.	19	1.80	....	0	0	0	0	0	.....	.....	...	...	...	
	1 23 a. m.	29.47	51	3	29.42	3	2	73	N.	17	1.44	....	0	0	0	0	0	.....	.....	...	...	...	
	7 0 a. m.	29.60	59	2	29.52	2	1	71	N.	16	1.28	432	0	0	0	0	0	.....	.....	...	...	...	
Thursday, Mar. 27..	10 23 a. m.	29.70	65	7	29.61	7	6	76	N.	14	.98	....	0	0	Cumulus	1-4	N.	.....	.....	...	...	...	
	2 0 p. m.	29.72	63	12	29.63	12	11	80	N.	4	.08	....	0	0	0	0	0	.....	.....	...	...	...	
	5 23 p. m.	29.74	62	12	29.66	12	11	80	N. W.	6	.18	....	0	0	Cumulus	1-4	N. W.	2.50 p. m.	3.50 p. m.	....	12	1	Flurry of snow.
	9 0 p. m.	29.75	65	12	29.66	12	11	80	N. W.	14	.98	....	0	0	Cumulus	4-4	N. W.	.....	.....	...	...	...	
	1 23 a. m.	29.72	55	10	29.65	10	9	79	N. W.	4	.08	....	0	0	Cumulus	2-4	N. W.	.....	.....	...	...	...	
	7 0 a. m.	29.66	57	6	29.59	6	5	76	Calm.	0	.00	186	0	0	0	0	0	.....	.....	...	...	...	
	10 23 a. m.	29.68	69	16	29.58	16	15	82	S.W.	7	.21	....	0	0	Cirrus ..	3-4	N. W.	.....	.....	...	...	...	
Friday, Mar. 28.....	2 0 p. m.	29.66	68	21	29.56	21	19	71	S.W.	16	1.28	....	0	0	0	0	0	.....	.....	...	...	...	
	5 23 p. m.	29.62	65	21	29.53	21	20	85	S.W.	17	1.44	....	0	0	Cirrus ..	3-4	N. W.	.....	.....	...	21	5	
	9 0 p. m.	29.59	63	21	29.50	21	20	85	S.W.	18	1.62	....	0	0	Cirrus ..	4-4	N. W.	.....	.....	...	...	...	Cirro-cumulus.
	1 23 a. m.	29.57	58	21	29.50	21	20	85	S.	29	4.20	....	0	0	.....	4-4	.....	11.15 p. m	.....	.04	...	...	Melted snow.
	7 0 a. m.	29.54	70	22	29.44	22	21	86	Calm.	0	.00	312	0	0	Cirrus ..	4-4	N. W.	.....	.....	...	...	...	Cirro-cumulus.
Saturday, Mar. 29 ..	10 23 a. m.	29.56	62	28	29.48	28	27	88	S	6	.18	....	0	0	Cirrus ..	1-4	N. W.	.....	D'g night	...	...	...	
	2 0 p. m.	29.59	71	32	29.48	32	30	79	S.W.	6	.18	....	0	0	Cirrus ..	2-4	W.	.....	.....	...	...	...	Do.
	5 23 p. m.	29.55	70	29	29.45	29	28	88	S.	5	.12	....	0	0	Cirrus ..	2-4	W.	.....	.....	...	33	21	
	9 0 p. m.	29.54	60	25	29.44	25	24	87	S.	11	.60	....	0	0	Cirrus ..	3-4	W.	.....	.....	...	...	...	Do.

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Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS Kind.	LOWER CLOUDS Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Sunday, March 30..	1 23 a. m.	29. 51	59	22	29. 43	22	21	86	S. E.	1	.00	...	0	0	0	0	0	.....	.....	...	...	...	
	7 0 a. m.	29. 48	70	21	29. 38	21	20	85	Calm.	0	.00	107	0	0	0	0	0	.....	.....	...	...	...	
	10 23 a. m.	29. 48	70	27	29. 38	27	26	88	E.	10	.50	..	0	0	0	0	0	.....	.....	...	...	...	
	2 0 p. m.	29. 50	70	28	29. 40	28	27	88	E.	12	.72	....	0	0	0	0	0	.....	.....	...	...	...	Wind E. S. E.
	5 23 p. m.	29. 51	69	26	29. 41	26	25	87	E.	7	.24	....	0	0	0	0	0	.....	.....	...	29	20	
	9 0 p. m.	29. 56	71	18	29. 45	18	17. 5	91	E.	7	.24	....	0	0	0	0	0	.....	.....	...	...	...	Wind E. N. E.
Monday, March 31..	1 23 a. m.	29. 58	61	14	29. 50	14	13. 5	90	E.	16	1. 28	....	0	0	0	0	0	.....	.....	...	...	...	
	7 0 a. m	29. 66	65	13	29. 57	13	12	81	E.	17	1. 44	229	0	0	0	0	0	.....	.....	...	...	...	
	10 23 a. m.	20. 71	65	17	29. 62	17	16. 5	91	S. E.	15	1. 12	....	Stratus..	4-4	.....	.....	.....	.....	.....	...	...	...	
	2 0 p. m.	29. 74	65	21	29. 63	21	20	85	S. E.	13	.84	....	0	0	Cumulus	4-4	S. E.	.....	.....	...	...	...	Wind E. S. E.
	5 23 p. m.	29. 74	59	19	29. 66	19	18	84	S. E.	21	2. 20	....	0	0	Cirrus...	2-4	S. W.	.....	.....	...	25	12	
	9 0 p. m.	29. 78	64	17	29. 69	17	16	83	S. E.	8	.32	....	0	0	0	0	0	.....	.....	...	...	...	
Tuesday, April 1...	1 23 a. m.	29. 83	56	14	29. 76	14	13	81	E.	4	.08	...	0	0	.....	4-4	.....	.....	.....	...	...	...	
	7 0 a. m.	29. 92	55	8	29. 85	8	7	77	N.	7	.24	307	0	0	Cirrus...	2-4	N. W.	.....	.....	...	...	...	
	10 23 a. m.	29. 97	64	16	29. 88	16	15	82	S. E.	11	.60	....	0	0	Cirrus...	2-4	N. W.	D'g night.	D'g night.	.01	...	...	Melted snow.
	2 0 p. m.	29. 96	67	21	29. 86	21	20	85	S. E.	23	2. 64	....	0	0	Cirrus...	4-4	S. W.	.....	.....	...	...	...	
	5 23 p. m.	29. 85	61	28	29. 77	28	27. 5	94	S. E.	26	3. 38	....	Nimbus	4-4	.....	...	.....	4.10 p. m.	.....	.02	28	7	Do.
	9 0 p. m.	29. 76	59	31	29. 68	31	30. 5	94	S. E.	36	6. 48	....	Nimbus	4-4	.....	...	.....	.....	.....	...	...	...	Snow.
Wednesday, April 2	1 23 a. m.	29. 78	54	32	29. 72	32	31. 5	94	S. W.	21	2. 20	....	0	0	.....	4-4	.....	.....	11.15 p. m.	.08	...	...	Melted snow.
	7 0 a. m.	29. 84	56	31	29. 77	31	30	89	S. W.	26	3. 38	525	0	0	Cirrus...	4-4	S. W.	.....	.....	...	...	...	
	10 23 a. m.	29. 89	60	34	29. 81	34	33	89	S. W.	36	6. 48	....	0	0	Cirrus...	3-4	S. W.	.....	.....	...	...	...	
	2 0 p. m.	29. 90	60	33	29. 82	33	32. 5	94	S.	13	.84	....	Nimbus	4-4	.....	...	.....	.....	.....	...	...	...	Snow.
	5 23 p. m.	29. 88	66	33	29. 78	33	32. 5	94	S. W.	28	3. 92	....	Stratus..	4-4	.....	...	.....	1.50 p. m.	4.15 p. m.	.03	34	28	Melted snow.
	9 0 p. m	29. 93	65	31	29. 84	31	30. 5	94	S. W.	20	2. 00	....	0	0	Cirrus...	4-4	.....	.....	.....	...	...	...	
Thursday, April 3..	1 23 a. m.	29. 94	58	31	29. 87	31	30. 5	94	S.	24	2. 88	..	Nimbus	4-4	.....	...	.....	D'g night.	.....	.01	...	...	Do.
	7 0 a. m.	29. 88	63	32	29. 79	32	31. 5	94	S.	33	5. 44	631	Stratus..	4 4	.....	...	.....	.....	.....	...	...	...	Light snow.
	10 23 a. m.	29. 87	62	33	29. 78	33	32. 5	94	S.	32	5. 12	....	Nimbus	4-4	.....	...	.....	.....	.....	.07	...	...	Melted snow.
	2 0 p. m.	29. 82	61	34	29. 74	34	33. 5	94	S.	22	2. 42	....	0	0	Cirrus...	4-4	.....	.....	.....	...	...	...	L't cir.-stratus from E.
	5 23 p. m.	29. 78	66	33	29. 66	33	32. 5	94	E.	3	.04	....	Stratus..	2-4	Cirrus...	2-4	E.	.....	12.20 p. m.	.01	35	30	Melted snow.
	9 0 p. m.	29. 71	70	31	29. 61	31	30. 5	94	E.	7	.24	....	0	0	Cirrus...	4-4	.....	.....	.....	...	...	...	

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Meteorological record for the five days ending April 8, 1873.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Friday, April 4	1 23 a. m.	29.62	60	28	29.54	28	27.5	94	E.	11	.60	....	0	0	Cirrus ..	4-4	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	29.50	67	29	29.40	29	28.5	94	E.	25	3.12	318	Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Light snow.
	10 23 a. m.	29.45	65	29	29.36	29	29	100	E.	32	5.12	....	Stratus	4-4	.....	.....	.....	Night..	.....	.01	.....	.....	
	2 0 p. m.	29.41	64	31	29.32	31	30.5	94	E.	33	5.44	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29.39	65	29	29.30	29	28.5	94	N.	42	8.82	....	Nimbus	1-2	Cumulus	1-2	N.	.....	.....	.02	31	28	
	9 0 p. m.	29.41	66	26	29.32	26	25	87	N.	53	14.04	....	Nimbus	1-2	Cumulus	1-2	N.	.....	.....	.....	.....	.....	
Saturday, April 5	1 23 a. m.	29.39	57	25	29.32	25	24	87	N.	46	10.58	....	Nimbus	4-4	.....	.....	.....	.....	.....	.02	.....	.....	
	7 0 a. m.	29.42	60	23	29.32	23	22.5	93	N.	39	7.60	911	0	0	Cirrus ..	4-4	E.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.41	64	23	29.32	23	22.5	93	N.	35	6.12	....	0	0	Cirrus ..	4-4	E.	.....	.....	.02	.....	.....	
	2 0 p. m.	29.42	65	24	29.33	24	23.5	93	N.	37	6.84	....	Nimbus	1-2	Cumulus	1-2	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.39	61	23	29.31	23	22.5	93	N. W.	26	3.38	....	Nimbus	1-2	Cumulus	1-2	N. W	.....	.....	.01	29	22	Melted snow
	9 0 p. m.	29.42	66	22	29.33	22	21	86	N.	24	2.88	....	0	0	Cirrus ..	4-4	.....	.....	.....	.....	.....	.....	
Sunday, April 6	1 23 a. m.	29.40	56	22	29.33	22	21.5	92	W.	17	1.44	....	Nimbus	1-2	Cumulus	1-2	W.	.....	.....	.01	.....	.....	
	7 0 a. m.	29.35	56	22	29.28	22	21.5	92	W.	17	1.44	611	Nimbus	1-2	Cumulus	1-2	W.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.35	61	24	29.27	24	23	86	W.	7	.24	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	.....	
	2 0 p. m.	29.34	67	27	29.24	27	26	88	W.	9	.40	....	0	0	Cumulus	4-4	W.	.....	2.15 p. m.	.00	.....	.....	
	5 23 p. m.	29.30	66	27	29.21	27	26	88	W.	8	.32	....	0	0	Cumulus	4-4	W.	.....	.....	.....	27	19	
	9 0 p. m.	29.31	67	26	29.21	26	25	87	W.	1	.01	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	.....	
Monday, April 7	1 23 a. m.	29.30	58	26	29.23	26	25	87	W.	4	.08	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	.....	
	7 0 a. m.	29.33	71	26	29.22	26	25	87	W.	5	.12	166	0	0	Cirrus ..	4-4	W.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.35	65	30	29.26	30	28	78	S. W.	6	1.28	....	0	0	Cirrus ..	1-4	W.	.....	.....	.....	.....	.....	
	2 0 p. m	29.36	67	32	29.26	32	30	79	W.	20	2.00	....	0	0	Cumulus	4-4	W.	.....	.....	.....	32	26	Light snow.
	5 23 p. m.	29.36	63	28	29.27	28	26	76	W.	19	1.80	....	Nimbus	4-4	.....	.....	.....	1.40 p. m.	.....	.02	.....	.....	
	9 0 p. m.	29.44	68	22	29.34	22	21	86	N. W.	38	7.22	....	Nimbus	1-4	Cumulus	3-4	N. W.	.....	.....	.....	.....	.....	
Tuesday, April 8	1 23 a. m.	29.49	57	18	29.42	18	17	84	N. W.	41	8.40	....	0	0	Cumulus	4-4	N. W.	.....	.....	.01	.....	.....	
	7 0 a. m.	29.60	60	18	29.52	18	17	84	N. W.	46	10.58	733	Nimbus	1-4	Cumulus	3-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.65	67	18	29.55	18	16	68	N. W.	44	9.68	....	0	0	Cumulus	4-4	N. W.	.....	.....	.01	.....	.....	
	2 0 p. m.	29.71	66	19	29.62	19	18	84	N. W.	45	10.12	....	Nimbus	3-4	Cumulus	1-4	N. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.73	61	18	29.65	18	17	84	N. W.	43	9.24	....	Nimbus	1-4	Cumulus	3-4	N. W.	.....	.....	.02	28	18	Melted snow.
	9 0 p. m.	29.75	67	12	29.65	12	11	80	N. W.	41	8.40	....	0	0	Cirrus ..	1-4	N. W.	.....	.....	.....	.....	.....	

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STATION: ISLAND OF SHI...

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from —)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Wednesday, Apr. 9.	1 23 a. m.	29.74	54	14	29.68	14	13	81	N. W.	37	6.84	...	0	0	Cumulus	4-4	N. W.	.....	.....	.01	...	...	Melted snow.
	7 0 a. m.	29.75	55	14	29.68	14	13	81	N. W.	38	7.22	974	Nimbus	1-4	Cumulus	3-4	N. W.	.....	.....	.....	...	...	Light snow.
	10 23 a. m.	29.80	61	15	29.72	15	14	82	N. W.	41	8.40	....	Nimbus	4 4	.....	.....	.....	.....	.....	.02	...	...	
	2 0 p. m.	29.85	65	14	29.76	14	13	81	N. W.	44	9.68	....	0	0	Cumulus	4-4	N. W.	.....	.....	.....	...	...	
	5 23 p. m.	29.92	66	12	29.82	12	10	61	N. W.	51	13.00	....	0	0	Cirrus ..	1-4	N. W.	.....	3.30 p.m.	.01	15	12	
	9 0 p. m.	29.95	67	12	29.85	12	11	80	N. W.	41	8.40	....	0	0	Cirrus ..	1-4	N. W.	.....	.....	.....	...	...	
Thursday, April 10.	1 23 a. m.	29.92	52	9	29.86	9	8	78	N. W.	32	5.12	....	0	0	Cumulus	4-4	N. W.	11.05 p.m.	.....	.....	...	...	
	7 0 a. m.	29.92	53	12	29.86	12	11	80	N. W.	27	3.64	921	0	0	Cumulus	4-4	N. W.	.....	.....	.....	...	...	
	10 23 a. m.	29.96	61	13	29.88	13	12	81	N.	30	4.50	....	Nimbus.	4-4	.....	.....	.....	.....	.....	.02	...	...	
	2 0 p. m.	30.01	65	10	29.92	10	9	79	N.	34	5.78	....	0	0	Cumulus	4-4	N.	.....	.....	.....	...	...	
	5 23 p. m.	30.04	67	9	29.94	9	8	78	N.	32	5.12	....	0	0	Cumulus	4-4	N.	.....	.....	.....	14	8	
	9 0 p. m.	30.08	66	6	29.98	6	5	78	N.	26	3.38	....	0	0	Cumulus	4-4	N.	.....	.....	.....	...	...	
Friday, April 11.	1 23 a. m.	30.06	52	4	30.00	4	3	74	N.	25	3.12	....	0	0	Cumulus	4-4	N.	.....	.....	.....	...	...	
	7 0 a. m.	30.05	46	5	30.01	5	4	75	N.	31	4.80	683	0	0	Cumulus	4-4	N.	.....	.....	.....	...	...	
	10 23 a. m.	30.13	64	8	30.04	8	7	77	N.	34	5.78	....	0	0	Cumulus	4-4	N.	.....	.....	.01	...	...	
	2 0 p. m.	30.12	68	9	30.02	9	8	78	N.	38	7.22	....	Nimbus.	1-2	Cumulus	1-2	N.	.....	.....	.....	...	...	
	5 23 p. m.	30.11	62	10	30.02	10	9	79	N.	48	11.52	....	0	0	Cumulus	4-4	N.	.....	4.40 p.m.	.01	10	3	Melted snow.
	9 0 p. m.	30.13	63	9	30.04	9	8	78	N.	46	10.58	....	0	0	Cirrus ..	3-4	N.	.....	.....	.....	...	...	
Saturday, April 12.	1 23 a. m.	30.15	53	8	30.09	8	7	77	N.	44	9.68	....	0	0	Cirrus ..	1-4	N.	.....	.....	.....	...	...	
	7 0 a. m.	30.25	57	8	30.16	8	7	77	N.	38	7.22	973	0	0	Cumulus	1-4	N.	.....	.....	.....	...	...	
	10 23 a. m.	30.31	69	11	30.20	11	10	79	N.	36	6.48	....	0	0	0	0	0	.....	.....	.....	...	...	
	2 0 p. m.	30.33	64	13	30.24	13	12	81	N.	34	5.78	....	0	0	0	0	0	.....	.....	.....	...	...	
	5 23 p. m.	30.35	67	13	30.25	13	12	81	N.	35	6.12	....	0	0	0	0	0	.....	.....	.....	14	7	
	9 0 p. m.	30.38	67	12	30.28	12	11	80	N.	33	5.44	....	0	0	0	0	0	.....	.....	.....	...	...	
Sunday, April 13.	11 23 a. m.	30.36	52	7	30.30	7	6	76	N. W.	21	2.20	...	0	0	0	0	0	.....	.....	.....	...	...	
	7 0 a. m.	30.40	61	12	30.32	12	11	80	N. W.	8	.32	658	0	0	0	0	0	.....	.....	.....	...	...	
	10 23 a. m.	30.41	67	18	30.31	18	17	84	N. W.	7	.24	...	0	0	Cirrus ..	1-2	N. W.	.....	.....	.....	...	...	
	2 0 p. m.	30.36	71	30	30.25	30	28	78	S. W.	8	.32	....	0	0	Cirrus ..	4-4	N. W.	.....	.....	.....	...	...	
	5 23 p. m.	30.28	67	27	30.18	27	26	88	S. W	16	1.28	...	0	0	Cirrus ..	4-4	S. W	.....	.....	.....	30	6	
	9 0 p. m.	30.18	68	24	30.04	24	23.5	93	S.	17	1.44	...	0	0	Cirrus ..	1-2	.....	.....	.....	.....	...	...	

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Meteorological record for the five days ending April 18, 1873.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Monday, April 14..	1 23 a. m.	29.98	56	26	29.91	26	25.5	93	S.	34	5.78	....	Stratus	1-2	Cirrus ..	1-2	S.	.....	.....	.....	.....	.....	
	7 0 a. m.	29.67	62	29	29.59	29	28.5	94	S.	43	9.24	489	Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Snow.
	10 23 a. m.	29.54	60	32	29.46	32	31.5	94	S.	42	8 82	....	Nimbus	4-4	.....	.....	.....	Night..	.....	.06	.....	.....	
	2 0 p. m.	29.47	65	32	29.38	32	31.5	94	S. W.	31	4.80	....	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Light snow.
	5 23 p. m.	29.56	64	28	29.47	28	27	88	W.	6	1.28	....	0	0	0	0	0	.....	4.30 p.m.	.02	33	25	Melted snow.
	9 0 p. m.	29.62	69	26	29.52	26	25	87	S. W.	16	1.28	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	1 23 a. m.	29.63	60	27	29.55	27	26	88	S. W.	18	1.62	....	0	0	Cumulus	1-2	S. W	.....	.....	.....	.....	.....	
	7 0 a. m.	29.66	68	28	29.56	28	27	88	W.	24	2.88	581	0	0	Cumulus	3-4	W.	.....	.....	.....	.....	.....	Light snow-showers.
Tuesday, April 15..	10 23 a. m.	29.69	68	31	29.59	31	29	78	W.	22	2.42	....	0	0	Cumulus	1-4	W.	Night..	.....	.01	.....	.....	
	2 0 p. m.	29.72	70	32	29.62	32	29	69	W.	23	2.64	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	5 23 p. m.	29.72	63	28	29.63	28	26	76	W.	25	3.12	....	0	0	Cumulus	1-2	W.	.....	.....	.....	33	24	
	9 0 p. m.	29.76	68	28	29.66	28	27	88	W.	26	3.38	....	0	0	Cumulus	1 2	W.	.....	.....	.....	.....	.....	
	1 23 a. m.	29.77	58	25	29 70	25	24	87	W.	22	2.42	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	.....	
Wednesday, April 16	7 0 a. m.	29.84	65	26	29.75	26	25	87	N. W.	22	2.42	561	Nimbus	3 4	Cumulus	1-4	N. W.	.....	.....	.....	.....	.....	Snow-flurries.
	10 23 a. m.	29.90	70	26	29.79	26	25	87	N. W.	41	8.40	....	Nimbus	1-4	Cumulus	1-2	N. W.	.....	.....	.03	.....	.....	
	2 0 p. m.	29.96	68	26	29.86	26	25	87	N. W.	44	9.68	....	0	0	Cumulus	3-4	N. W.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.05	65	24	29.96	24	23	86	N. W.	45	10.12	....	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	
	9 0 p. m.	30.11	66	24	30.01	24	23	86	N. W.	35	6.12	....	0	0	Cumulus	4-4	N.	.....	.....	.....	27	24	
	1 23 a. m.	30.19	60	22	30.11	22	21	86	N. W.	22	2.42	....	0	0	Cumulus	4 4	N. W.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.30	68	24	30.20	24	22	73	N.	14	.98	869	0	0	Cumulus	4-4	N.	.....	10.00 p. m.	.00	.....	.....	
Thursday, April 17.	10 23 a. m.	30.29	69	30	30.18	30	28	78	W.	5	.12	....	0	0	Cirrus ..	4-4	.....	.....	.....	.....	.....	.....	
	2 0 p. m.	30.24	67	30	30.14	30	29	89	S. W.	14	.98	....	0	0	Cirrus ..	4-4	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	30.10	64	28	30.02	28	27.5	94	S.	10	1.80	....	Nimbus	4-4	.....	.....	.....	3.20 p. m.	.....	.02	31	20	
	9 0 p. m.	29.97	62	27	29.88	27	26.5	94	S.	25	3.12	....	Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	1 23 a. m.	29.84	58	29	29.77	29	28.5	94	S.	24	2.88	....	Nimbus	4 4	.....	.....	.....	.....	.....	.20	.....	.....	Heavy snow.
	7 0 a. m.	29.66	67	31	29.56	31	30.5	94	S. W.	17	1.44	428	Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Snow.
Friday, Apr. 18	10 23 a. m.	29.64	64	34	29.55	34	33.5	94	S. W.	8	.32	....	Stratus	1-2	Cirrus ..	1-2	W.	.....	9.40 a. m.	.17	.....	.....	Melted snow.
	2 0 p. m.	29.63	69	34	29.53	34	33.5	94	W.	9	.40	....	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29.66	70	29	29.56	29	28	88	N. W.	22	2.42	....	0	0	Cumulus	4-4	N. W	.....	.....	.....	35	28	

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Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Saturday, April 19	1 23 a. m.	29.67	62	27	29.59	27	26	88	N.	7	.24	...	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	
	7 0 a. m.	29.63	68	28	29.53	28	27	88	N.	4	.08	231	Stratus..	2-4	Cirrus ..	2-4	S. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.62	70	30	29.52	30	28	78	N. E.	9	.40	....	0	0	Cumulus	4-4	N. E.	.....	.....	.....	.....	.....	
	2 0 p. m.	29.53	71	30	29.42	30	29.5	94	E.	24	2.88	....	Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29.45	69	27	29.35	27	26.5	94	E.	34	5.78	....	Nimbus	4-4	.....	.....	.....	1.30 p. m.	.....	.23	31	26	Heavy snow.
	9 0 p. m.	29.32	70	26	29.22	26	26	100	E.	44	9.68	...	Nimbus	4-4	.....	.....	.....	.....	.....	..	.....	.....	Melted snow.
Sunday, April 20	1 23 a. m.	29.15	58	26	29.08	26	25.5	93	E.	41	8.40	...	Nimbus.	4-4	.....	.....	.....	.....	.....	.43	.....	.....	Heavy snow.
	7 0 a. m.	29.10	69	26	29.00	26	25	87	N.	46	10.58	789	Nimbus.	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Melted snow.
	10 23 a. m.	29.16	67	24	29.06	24	22	73	N.	48	11.52	....	0	0	Cumulus	4-4	N.	.....	8.40 a. m.	.07	.....	.....	Light snow.
	2 0 p. m.	29.26	68	24	29.16	24	22	73	N. W.	52	13.52	....	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	Melted snow.
	5 23 p. m.	29.39	68	22	29.29	22	20	72	N. W.	38	7.22	....	0	0	Cirrus ..	2-4	S. W.	.....	.....	.....	27	22	
	9 0 p. m.	29.52	68	21	29.42	21	20	85	N. W.	31	4.80	....	0	0	0	0	0	.....	.....	.....	.....	.....	
Monday, April 21	1 23 a. m.	29.65	55	16	29.58	16	14	65	N.	26	3.38	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	7 0 a. m.	29.76	70	17	29.65	17	15	67	N.	11	.60	868	0	0	0	0	0	.....	.....	.....	.....	.....	
	10 23 a. m.	29.79	63	22	29.70	23	20	72	N. W.	6	.18	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	2 0 p. m.	29.82	69	25	29.72	25	23	74	N. W.	8	.32	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	5 23 p. m.	29.82	68	21	29.72	21	19	71	N. W.	15	1.12	....	0	0	0	0	0	.....	.....	.....	25	15	
	9 0 p. m.	29.87	68	18	29.77	18	17	84	N.	21	2.20	....	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	.....	
Tuesday, April 22	1 23 a. m.	29.89	56	12	29.82	12	11	80	N.	28	3.92	....	0	0	Cumulus	1-4	N.	.....	.....	.....	.....	.....	
	7 0 a. m.	29.94	71	14	29.83	14	12	63	N.	35	6.12	444	0	0	0	0	0	.....	.....	.....	.....	.....	
	10 23 a. m.	29.91	67	17	29.81	17	15	67	N.	33	5.44	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	2 0 p. m.	29.89	64	18	29.8[illegible]	18	16	68	N.	36	6.48	...	0	0	0	0	0	.....	.....	.....	.....	.....	
	5 23 p. m.	29.85	64	17	29.76	17	15	67	N.	34	5.78	....	0	0	0	0	0	.....	.....	.....	18	11	
	9 0 p. m.	29.82	67	15	29.72	15	13	64	N.	34	5.78	....	0	0	0	0	0	.....	.....	.....	.....	.....	
Wednesday, Apr. 23	1 23 a. m.	29.74	55	14	29.67	14	13	81	N.	33	5.44	....	0	0	Cumulus	2-4	N.	.....	.....	.....	.....	.....	
	7 0 a. m.	29.71	60	15	29.63	15	13	64	N. W.	32	5.12	833	0	0	Cumulus	3-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.72	63	18	29.63	18	16	68	N. W.	27	3.64	....	0	0	Cumulus	4-4	N. W.	7.40 a. m.	.....	.....	.....	.....	Snow, inappreciable.
	2 0 p. m.	29.73	66	22	29.64	22	20	72	W.	7	.24	....	0	0	Cumulus	3-4	W.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.73	65	26	29.64	26	25	87	S. W.	3	.04	....	0	0	Cumulus	4-4	S. W.	.....	10.30 p. m.	.....	26	13	
	9 0 p. m.	29.79	66	18	29.69	18	17	84	E.	5	.12	....	0	0	Cirrus ..	3-4	S.	.....	.....	.....	.....	.....	Wind E. N. E.

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Meteorological record for the five days ending April 28, 1873.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
	1 23 a. m.	29.85	62	15	29.76	15	14.5	91	E.	12	.72	...	0	0	Cirrus ..	1-2	S.	.....	.....	.....	.....	.....	
	7 0 a. m.	29.83	68	21	29.73	21	20.5	92	E.	24	2.88	271	Nimbus	2-4	Cirrus ..	2-4	.....	.....	.....	.....	.....	.....	Light snow; wind E. N. E.
Thursday, April 24.	10 23 a. m.	29.84	67	29	29.74	29	28	88	E.	31	4.80	....	Stratus .	1-2	Cirrus ..	1-2	E.	Night...	9.00 a. m.	.02	.....	.....	Melted snow.
	2 0 p. m.	29.87	65	33	29.78	33	32	89	E.	29	4.20	....	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Wind E. N. E.
	5 23 p. m.	29.95	69	32	29.85	32	31.5	94	E.	24	2.88	....	Stratus	1-2	Cirrus ..	1-2	E.	.....	.....	.....	33	14	
	9 0 p. m.	29.99	67	31	29.89	31	30.5	94	E.	23	2.64	....	Stratus .	2-4	Cirrus ..	2-4	E.	.....	.....	.....	.....	.....	Cirro-stratus; wind E. N. E.
	1 23 a. m.	30.07	58	27	30.00	27	26	88	E.	25	3.12	....	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	30.12	62	28	30.03	28	27	88	E.	29	4.20	622	0	0	Cirrus ..	1-4	E.	.....	.....	.....	.....	.....	Cirrus from E. N. E.
Friday, April 25....	10 23 a. m.	30.18	64	31	30.09	31	30.5	94	E.	28	3.92	....	Fog.....	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	2 0 p. m.	30.23	67	33	30.13	33	32.5	94	E.	25	3.12	....	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	30.29	69	30	30.18	30	29.5	94	E.	16	1.28	....	0	0	0	0	0	.....	.....	.....	33	26	
	9 0 p. m.	30.35	71	29	30.24	29	28.5	94	E.	15	1.12	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	1 23 a. m.	30.36	59	25	30.30	25	24.5	93	E.	16	1.28	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	7 0 a. m.	30.42	63	27	30.33	27	26	88	E.	14	.98	421	0	0	0	0	0	.....	.....	.....	.....	.....	
Saturday, April 26.	10 23 a. m.	30.43	65	32	30.33	32	30	79	N. E.	14	.98	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	2 0 p. m.	30.44	68	33	30.34	33	31	80	N. E.	16	1.28	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	5 23 p. m.	30.43	67	31	30.33	31	29	78	N. E.	17	1.44	....	0	0	0	0	0	.....	.....	.....	34	23	
	9 0 p. m.	30.45	66	29	30.35	29	27	77	N. E.	28	3.92	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	1 23 a. m.	30.42	56	27	30.35	27	26	88	N. E.	25	3.12	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	7 0 a. m.	30.40	59	29	30.32	29	28	88	N. E.	23	2.64	512	0	0	0	0	0	.....	.....	.....	.....	.....	
Sunday, April 27 ...	10 23 a. m.	30.41	63	33	30.32	33	31	80	N. E.	24	2.88	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	2 0 p. m.	30.40	62	34	30.3	34	32	79	N. E.	25	3.12	....	0	0	0	0	0	.....	.....	.....	.....	.....	
	5 23 p. m.	30.35	69	32	30.24	32	30	79	N. E.	24	2.88	....	0	0	Cirrus ..	4-4	N. E.	.....	.....	.....	34	26	Cirro-cum.
	9 0 p. m.	30.34	69	31	30.23	31	30	89	N. E.	23	2.64	....	0	0	Cirrus ..	1-2	N. E.	.....	.....	.....	.....	.....	
	1 23 a. m.	30.28	56	28	30.20	28	27	88	N. E.	36	6.48	....	Stratus .	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Wind E. N. E.
	7 0 a. m.	30.23	64	27	30.14	27	26	88	N. E.	38	7.22	651	Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Do.

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Day and date of observation.	Time of observation.	Barometer.	Attached.	Exposed.	Corrected barometer.	Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction (moving from—)	Commenced.	Ended.	Amount of rain or melted snow.	Maximum.	Minimum.	Remarks.
Tuesday, April 29...	1 23 a. m.	30. 20	58	55	30. 13	25	23	74	N.	53	14. 04	1042	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	A few flakes of snow.
	7 0 a. m.	30. 18	63	55	30. 09	23	21	73	N.	38	7. 32	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	10 23 a. m.	30. 18	68	55	30. 09	25	23	74	N.	30	7. 40	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	2 0 p. m.	30. 14	64	56	30. 05	26	24	75	N.	37	6. 84	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	27	22	
	5 23 p. m.	30. 08	66	56	30. 00	26	24	75	N.	39	7. 60	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	9 0 p. m.	30. 04	64	56	29. 96	26	24	75	N.	41	8. 40	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	1 23 a. m.	30. 01	64	56	29. 93	26	24	75	N.	41	8. 40	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
Wednesday, Apr. 30	7 0 a. m.	29. 96	64	56	29. 88	26	24	75	N.	43	8. 40	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	10 23 a. m.	29. 84	65	59	29. 77	28	25	77	N.	43	9. 24	951	Nimbus	4-4	.....	.....	.....	.....	.....	.03	.....	.....	Snow.
	2 0 p. m.	29. 84	65	59	29. 75	29	25	77	N.	38	7. 22	.....	Nimbus	4-4	.....	.....	.....	Night.	.....	.....	.....	.....	Melted snow.
	5 23 p. m.	29. 81	65	59	29. 74	30	26	78	N.	36	6. 48	.....	Nimbus	4-1	.....	.....	.....	.....	.....	.....	.....	.....	Snow.
	9 0 p. m.	29. 81	65	59	29. 72	30	26	78	N.	37	6. 84	.....	0	0	Cirrus...	1-4	N. E.	.....	4.10 p. m.	.02	31	24	Melted snow.
	1 23 a. m.	29. 80	64	59	29. 72	29	26	78	N.	37	6. 84	.....	0	0	.....	0	0	.....	.....	.....	.....	.....	
	7 0 a. m.	29. 80	66	59	29. 72	29	26	78	N.	32	5. 12	.....	0	0	.....	0	0	.....	.....	.....	.....	.....	
Thursday, May 1...	10 23 a. m.	29. 81	67	59	29. 71	29	26	78	N.	31	4. 90	861	0	0	Cirrus...	1-4	N. E.	.....	.....	.....	.....	.....	Cirro-cumulus.
	2 0 p. m.	29. 83	70	59	29. 72	30	28	88	N.	32	5. 12	.....	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	29. 83	65	58	29. 74	28	27	88	N.	36	6. 48	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	30	25	
	9 0 p. m.	29. 85	65	58	29. 76	28	27	88	N.	35	6. 12	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	1 23 a. m.	29. 84	59	56	29. 77	26	24	75	N.	57	16. 24	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	7 0 a. m.	29. 88	71	59	29. 77	19	17	69	N.	35	6. 12	901	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	10 23 a. m.	29. 86	63	57	29. 77	21	19	71	N.	34	5. 78	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	Few flakes of snow, (inapp.)
	2 0 p. m.	29. 86	64	53	29. 77	23	21	73	N.	32	5. 12	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	29. 88	63	53	29. 79	23	22	73	N.	31	4. 90	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	28	19	
	9 0 p. m.	29. 87	66	54	29. 75	23	21	73	N.	30	4. 50	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	1 23 a. m.	29. 85	56	51	29. 78	21	19	71	N.	32	5. 12	.....	0	0	Cumulus	2-4	N.	.....	.....	.....	.....	.....	
	7 0 a. m.	29. 86	66	51	29. 78	21	19	71	N.	29	4. 30	761	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	.....	
Saturday, May 3....	10 23 a.	29. 92	65	55	29. 83	25	23	74	N.	28	3. 92	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	2 0 p. m.	29. 93	67	55	29. 83	27	26	88	N.	29	4. 20	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	27	21	
	5 23 p. m.	29. 94	65	55	29. 85	25	24	87	N.	22	2. 42	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	9 0 p. m.	29. 96	65	55	29. 87	25	24	87	N.	18	1. 62	.....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	

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Meteorological record for the five days ending May 8, 1873.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Sunday, May 4....	1 23 a. m.	30.00	62	25	29.91	25	24	87	N.	16	1.28	....	0	0	Cumulus.	4-4	N.	.....	.....	...	...	...	
	7 0 a. m.	30.07	70	26	29.96	26	25	87	N. W.	13	.84	472	0	0	Cumulus.	4-4	N. W.	.....	.....	...	...	...	
	10 23 a. m.	30.11	70	29	30.00	29	27	77	N. W.	5	.12	....	0	0	Cumulus.	4-4	N. W.	.....	.....	...	...	...	
	2 0 p. m.	30.09	65	32	30.00	32	30	79	N. W.	7	.24	....	0	0	Cumulus.	4-4	N. W.	.....	.....	...	...	...	
	5 23 p. m.	30.11	71	31	30.00	31	30	89	W.	9	.40	....	0	0	Cumulus.	4-4	N. W.	5.05 p. m.	5.20 p. m.	...	32	25	L't snow, (inapp.)
	9 0 p. m.	30.11	63	29	30.02	29	28	88	W.	5	.12	....	0	0	Cumulus.	4-4	W.	.....	.....	...	...	...	
Monday, May 5....	1 23 a. m.	30.10	58	29	30.03	29	28	88	W.	2	.02	....	0	0	Cumulus.	4-4	W.	.....	.....	...	...	...	
	7 0 a. m.	30.12	69	30	30.02	30	28	78	N.	1	.00	126	0	0	Cumulus.	4-4	.....	.....	.....	...	...	...	
	10 23 a. m.	30.12	67	33	30.02	33	32	89	S. E.	5	.12	....	0	0	Cumulus.	4-4	.....	7.10 a. m.	7.15 a. m.	...	...	...	Light hail.
	2 0 p. m.	30.11	69	34	30.01	34	33	89	S. E.	4	.08	....	0	0	Cumulus.	4-4	.....	.....	.....	...	...	...	
	5 23 p. m.	30.10	70	31	29.99	31	30	89	S. E.	6	.18	....	0	0	Cumulus.	4-4	S. E.	.....	.....	...	34	29	
	9 0 p. m.	30.08	65	29	29.99	29	28	88	S. E.	17	1.44	....	0	0	Cumulus.	4-4	S. E.	.....	.....	...	...	...	
Tuesday, May 6...	1 23 a. m.	30.04	59	25	29.96	25	24	87	S. E.	16	1.28	....	0	0	Cumulus.	4-4	S. E.	.....	.....	...	...	...	
	7 0 a. m.	30.00	66	27	29.90	27	26	88	S. E.	22	2.42	267	0	0	Cumulus.	4-4	S. E.	.....	.....	...	...	...	
	10 23 a. m.	29.95	63	30	29.86	30	29	89	S. E.	23	2.64	....	0	0	Cumulus.	4-4	S. E.	.....	.....	...	...	...	
	2 0 p. m.	29.92	63	31	29.83	31	30	89	S. E.	24	2.88	....	Stratus..	4-4	.....	.....	.....	.....	.....	...	...	...	
	5 23 p. m.	29.88	68	30	29.78	30	28	78	S. E.	24	2.88	....	Stratus..	4-4	.....	.....	.....	4.35 p. m.	.....	.01	32	25	Melted snow.
	9 0 p. m.	29.86	65	27	29.77	27	26	88	E.	32	5.12	....	Stratus..	4-4	.....	.....	.....	.....	.....	...	...	...	Light snow.
Wednesday. May 7	1 23 a. m.	29.76	58	28	29.69	26	25	87	E.	30	4.50	....	Stratus..	4-4	.....	.....	.....	.....	.....	.01	...	...	Melted snow.
	7 0 a. m.	29.71	65	30	29.62	30	29	89	E.	31	4.80	677	Stratus..	4-4	.....	.....	.....	.....	.....	...	...	...	L't snow, (inapp.)
	10 23 a. m.	29.70	71	31	29.59	31	30	89	E.	22	2.42	....	Stratus..	4-4	.....	.....	.....	.....	7.20 p. m.	...	...	...	
	2 0 p. m.	29.68	71	36	29.57	36	34	80	N. E.	23	2.64	....	0	0	Cumulus.	4-4	N. E.	.....	.....	...	...	...	
	5 23 p. m.	29.66	68	33	29.56	33	30	70	N. E.	16	1.28	....	0	0	Cirrus...	4-4	N. E.	.....	.....	...	36	25	Cirro-cumulus.
	9 0 p. m.	29.67	68	31	29.57	31	29	78	N. E.	12	.72	....	Stratus..	2-4	Cirrus...	2-4	N. E.	.....	.....	...	...	...	
Thursday, May 8..	1 23 a. m.	29.64	59	31	29.56	31	30	89	E.	10	.50	....	Stratus..	2-4	.....	.....	.....	.....	.....	...	...	...	
	7 0 a. m.	29.60	66	32	29.51	32	31	89	E.	6	.18	378	Stratus..	4-4	.....	.....	.....	.....	.....	...	...	...	
	10 23 a. m.	29.60	69	35	29.50	35	34	89	S. E.	7	.24	....	Fog	4-4	.....	.....	.....	.....	.....	...	...	...	
	2 0 p. m.	29.60	69	39	29.50	39	37	81	S. E.	5	.12	....	Nimbus .	2-4	Cumulus.	2-4	S. E.	.....	.....	...	...	...	L't flurries of snow.
	5 23 p. m.	29.60	70	36	29.50	36	34	60	S E.	7	.24	..	0	0	Cumulus.	4-4	S. E.	12.40 p. m.	3.30 p. m.	.01	40	30	Melted snow.
	9 0 p. m.	29.64	70	38	29.54	38	31	39	S. E.	22	2.42	....	0	0	Cumulus.	4-4	S. E.	.....	.....	...	...	...	

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Day and date of observation.	Time of observation.	Barometer.	Attached.	Exposed.	Corrected barometer.	Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction (motion from—)	Commen'd.	Ended.	Amount of or melted sn	Maximum.	Minimum.	Remarks.
Friday, May 9	1 23 a. m.	29.64	58	31	29.57	31	30	89	E.	8	.32	181	0	0	Cumulus	4-4	E.	.....	.....	.....	.....	.....	
	7 0 a. m.	29.66	59	31	29.59	31	29	79	E.	15	1.12		Stratus	2-4	Cirrus	2-4	E.	.....	.....	.....	.....	.....	Wind E. N. E.
	10 23 a. m.	29.66	66	34	29.59	34	33	83	E.	12	.72		Stratus	2-4	Cirrus	2-4	E.	.....	.....	.....	.....	.....	
	2 0 p. m.	29.70	65	36	29.62	36	35	90	E.	11	.60		Stratus	2-4	Cirrus	2-4	E.	4.30 p. m.	.....	.....	37	31	Do.
	5 23 p. m.	29.72	71	33	29.61	33	32	89	E.	8	.32		Stratus	4-4	.....	.....	.....	.....	5.10 p. m.	.....	.....	.....	Light snow.
	9 0 p. m.	29.75	70	32	29.65	31	30	89	E.	8	.32		Stratus	2-4	Cirrus	2-4	E.	.....	.....	.....	.....	.....	Wind E. N. E.
Saturday, May 10	1 23 a. m.	29.73	61	31	29.65	31	30	89	E.	6	.18		Stratus	2-4	Cirrus	2-4	E.	.....	.....	.....	.....	.....	
	7 0 a. m.	29.75	71	33	29.64	32	31	89	E.	7	.24	224	Stratus	2-4	Cirrus	2-4	N. E.	.....	.....	.....	.....	.....	
	10 23 a. m.	29.74	67	34	29.64	34	32	79	N. E.	6	.18		0	0	Cumulus	2-4	N.	.....	.....	.....	.....	.....	
	2 0 p. m.	29.73	70	33	29.63	33	31	80	N.	5	.12		0	0	Cumulus	1-4	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	29.71	68	33	29.61	33	32	89	N.	9	.40		0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	9 0 p. m.	29.71	70	30	29.61	30	29	89	N.	18	1.62		Nimbus	3-4	Cumulus	1-4	N.	8.50 p. m.	.....	.....	35	30	Light snow.
Sunday, May 11	1 23 a. m.	29.57	60	30	29.50	31	30	89	N. W.	13	.84		Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Do
	7 0 a. m.	29.55	60	30	29.50	31	30	89	N. W.	10	.50	257	Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	10 23 a. m.	29.59	65	33	29.50	33	32	89	N. W.	12	.73		Fog	4-4	.....	.....	.....	.....	8.10 a. m.	.01	.....	.....	Melted snow.
	2 0 p. m.	29.59	71	34	29.49	34	33	89	N.	13	.84		Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29.58	70	31	29.47	31	30	89	N.	15	1.12		Stratus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Few drops rain.
	9 0 p. m.	29.58	71	31	29.47	31	30	89	N.	13	.84		Stratus	4-4	.....	.....	.....	.....	2.15 p. m.	.....	34	30	
	1 23 a. m.	29.55	61	31	29.47	31	30.5	94	N. E.	16	1.53		Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	29.54	69	32	29.44	32	31.5	94	N. E.	12	1.02	306	Nimbus	4-4	.....	.....	.....	.....	.....	.09	.....	.....	Melted snow.
Monday, May 12	10 23 a. m.	29.55	63	34	29.46	34	33	89	N. E.	22	2.42		Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Light snow, wind E. N. E.
	2 0 p. m.	29.60	72	36	29.49	36	35	90	N. E.	24	2.88		Fog	.....	.....	.....	.....	.....	7.40 a. m.	.05	.....	.....	Melted snow.
	5 23 p. m.	29.63	69	34	29.53	34	33	89	N. E.	21	2.30		Stratus	3-4	.....	.....	.....	.....	.....	.....	.....	.....	Wind E. N. E.
	9 0 p. m.	29.67	70	30	29.57	30	29	89	N. E.	23	2.64		Fog	4-4	.....	.....	.....	.....	.....	.....	37	30	
	1 23 a. m.	29.65	59	28	29.57	28	75.5	94	N. E.	18	1.62		Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	29.66	69	30	29.56	30	30	100	N.	13	.84	512	Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	
Tuesday, May 13	10 23 a. m.	29.66	69	32	29.56	32	31	89	N.	15	1.12		Nimbus	3-4	Cirrus	1-4	N. W.	7.45 a. m.	.....	.02	.....	.....	Melted snow.
	2 0 p. m.	29.65	70	33	29.55	33	32	89	N.	11	.60		Nimbus	3-4	Cumulus	1-4	N.	.....	.....	.....	.....	.....	Snow.
	5 23 p. m.	29.63	70	32	29.55	32	31	89	N.	14	.98		Stratus	2-4	Cirrus	2-4	S. E.	.....	3.25 p. m.	.02	34	27	Melted snow.
	9 0 p. m.	29.67	71	31	29.56	31	30.5	94	E.	14	.98		Fog	4-4	.....	.....	.....	.....	.....	.....	.....	.....	.....	

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Meteorological record for the five days ending May 18, 1873.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS Kind.	LOWER CLOUDS Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Wednesday, May 14	1 23 a. m.	29.65	60	29	29.57	29	28.5	94	N.E.	14	.98	..	Fog	4-4	.....	....	.....	.....	.....	...	...	...	
	7 0 a. m.	29.62	69	30	29.52	30	30	100	N.	15	1.12	304	Fog	4-4	.....	....	.....	.....	.....	...	...	...	
	10 23 a. m.	29.61	68	30	29.51	30	29	89	N.	35	6.12	...	Stratus	4-4	.....	....	.....	.....	.....	...	...	...	
	2 0 p. m.	29.57	60	31	29.50	31	30	89	N.	31	4.80	....	0	0	Cumulus	4-4	N.	.....	.....	....	...	...	
	5 23 p. m.	29.60	68	27	29.50	27	25	76	N.	29	4.20	....	0	0	Cumulus	4-4	N.	.....	.....	....	32	27	
	9 0 p. m.	29.61	66	26	29.52	26	24	75	N.	41	8.40	...	0	0	Cumulus	4-4	N.	.....	.....	....	...	...	
Thursday, May 15	1 23 a. m.	29.59	56	24	29.52	24	22	73	N.	42	8.82	...	Nimbus	4-4	.....	....	.....	.....	.....	....	...	...	
	7 0 a. m.	29.56	61	26	29.48	26	24	75	N.	28	3.92	764	0	0	Cumulus	4-4	N.	.....	.....	....	...	...	
	10 23 a. m.	29.58	71	28	29.47	28	26	76	N.	25	3.12	...	0	0	Cumulus	3 4	N.	.....	.....	....	...	...	
	2 0 p. m.	29.57	70	30	29.47	30	28	78	N. W.	11	.00	...	0	0	Cumulus	1-2	N. W.	.....	.....	....	...	...	
	5 23 p. m.	29.58	69	30	29.48	30	28	78	N.	5	.12	....	Stratus	1-4	Cumulus	3-4	N.	.....	.....	....	31	24	
	9 0 p. m.	29.64	69	26	29.54	26	25	87	N.	8	.32	...	0	0	Cumulus	4-4	N.	.....	.....	....	...	...	
Friday, May 16	1 23 a. m.	29.62	59	28	29.54	28	27	88	N.	12	.72	...	Nimbus	4-4	.....	....	.....	11.30 p. m.	.....	.01	...	...	
	7 0 a. m.	29.64	66	30	29.55	30	29.5	94	N.	18	1.62	309	Nimbus	4-4	.....	....	.....	.....	.....	...	...	...	Heavy snow.
	10 23 a. m.	29.66	70	30	29.56	30	29.5	94	N.	22	2.42	....	Nimbus	1-4	Cirrus ..	3-4	.....	.....	.....	.09	...	...	
	2 0 p. m.	29.69	69	29	29.59	29	28	88	N.	20	2.00	....	Stratus	4-4	.....	....	.....	.....	.....	...	...	...	Light snow.
	5 23 p. m.	29.72	70	28	29.62	28	27	88	N.	26	3.38	...	Stratus	4-4	.....	....	.....	.....	.....	.01	30	26	
	9 0 p. m.	29.75	68	29	29.65	29	28	88	N.	18	1.62	...	Nimbus	3-4	Cumulus	1-4	N.	.....	.....	...	...	...	Do.
Saturday, May 17	1 23 a. m.	29.75	60	28	29.67	28	27	88	N.	17	1.44	...	.....	4-4	.....	....	.....	.....	.....	.01	...	...	
	7 0 a. m.	29.77	66	30	29.67	30	29.5	94	N.	22	2.42	477	0	0	Cumulus	4-4	N.	.....	.....	...	...	...	Do.
	10 23 a. m.	29.80	70	30	29.70	30	29.5	94	N.	22	2.42	....	Nimbus	1-4	Cirrus ..	3-4	.....	.....	.....	.01	...	...	
	2 0 p. m.	29.83	71	31	29.72	31	30	89	N.	21	2.20	....	0	0	Cumulus	4-4	N.	.....	.....	...	...	...	Do.
	5 23 p. m.	29.84	69	30	29.74	30	29	89	N.	20	2.00	....	Nimbus	1-4	Cumulus	3-4	N.	.....	.....	.01	31	27	
	9 0 p. m.	29.86	71	30	29.77	30	29	89	N.	23	2.64	....	Nimbus	1-4	Cumulus	3-4	N.	.....	.....	...	...	...	Do.
Sunday, May 18	1 23 a. m.	29.90	61	27	29.82	27	25	76	N.	21	2.20	....	0	0	Cumulus	4-4	N.	.....	.....	...	...	...	
	7 0 a. m.	29.96	66	27	29.86	27	26	88	N.	19	1.80	501	0	0	Cumulus	4 4	N.	.....	.....	...	...	...	Do.
	10 23 a. m.	30.00	61	27	29.90	27	25	76	N.	21	2.20	....	0	0	Cumulus	4-4	N.	.....	.....	.01	...	...	Melted snow.
	2 0 p. m.	30.03	68	26	29.93	26	24	75	N.	16	1.28	....	0	0	Cumulus	4-4	N.	.....	.....	...	...	...	
	5 23 p. m.	30.05	69	25	29.95	25	23	74	N.	15	1.12	....	0	0	Cumulus	4-4	N.	.....	.....	....	30	25	
	9 p. m.	30.10	71	25	29.99	25	23	74	N.	17	1.44	....	0	0	Cumulus	4-4	N.	.....	.....	....	...	...	

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Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	RAIN OR SNOW. Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
Monday, May 19	1 23 a. m.	30.12	68	23	30.02	23	23	86	N.	14	.08	416	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	Light snow.
	7 0 a. m.	30.03	68	26	29.93	26	24	75	N.	16	1.28		0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.10	67	28	30.06	26	24	75	N.	18	1.62		0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	2 0 p. m.	30.12	69	29	30.08	29	24	69	N.	15	1.12		0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.19	69	28	30.09	28	26	76	N.	16	1.28		0	0	Cumulus	3-4	N.	.....	.....	.....	23	.....	
	9 0 p. m.	30.23	71	26	30.12	26	24	75	N.	16	1.28		Stratus	1-2	Cirrus	1-2	N.	.....	.....	.....	.....	.....	
	1 23 a. m.	30.21	58	29	30.14	29	28	88	N. W.	15	1.12		Stratus	1-2	Cirrus	1-2	N.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.22	59	31	30.14	31	29	78	N. W.	14	.98	376	0	0	Cumulus	4-4	N. W.	.....	.....	.01	.....	.....	Do.
	10 23 a. m.	30.24	64	32	30.15	32	30	79	N. W.	8	.32	...	Nimbus	1-2	Cirrus	1-2	N.	Night.	.....	.....	.....	.....	
	2 0 p. m.	30.23	70	36	30.17	36	34	80	S. W.	4	.08	...	Stratus	1-2	Cirrus	1-2	S. W.	.....	.....	.....	.....	.....	
Tuesday, May 20	5 23 p. m.	30.26	71	33	30.17	33	31	80	N. W.	3	.04	...	0	0	Cirrus	4-4	S. W.	.....	4.20 p. m.	.02	36	.....	Melted snow.
	9 0 p. m.	30.30	72	30	30.19	30	28	78	S. W.	1	.01	...	0	0	Cirrus	4-4	S. W.	.....	.....	.....	.....	.....	
	1 23 a. m.	30.28	59	29	30.20	29	27	77	S. W.	2	.02	...	0	0	Cirrus	4-4	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	30.34	65	30	30.15	30	28	77	S. W.	4	.08	102	Stratus	1-2	Cirrus	1-2	N.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.36	71	34	30.15	34	31	78	W.	8	.32	...	Stratus	1-2	Cirrus	1-2	N. N.	.....	.....	.....	.....	.....	
Wednesday, May 21	2 0 p. m.	30.33	70	35	30.11	35	31	62	W.	8	.32	...	0	0	Cirrus	1-2	O	.....	.....	.....	.....	.....	
	5 23 p. m.	30.30	69	34	30.11	34	31	71	W.	8	.32	...	0	0	Cirrus	1-4	N. W.	.....	.....	.....	35	29	
	9 0 p. m.	30.18	71	32	30.07	32	30	79	S. W.	3	.04	...	0	0	Cirrus	1-2	N. W.	.....	.....	.....	.....	.....	
	1 23 a. m.	30.14	63	30	30.05	30	28	78	W.	3	.04	...	Stratus	1-2	Cumulus	4-4	.....	Night.	.....	.....	.....	.....	
	7 0 a. m.	30.10	61	31	30.02	31	29	78	N.	21	2.80	198	0	0	Cirrus	1-2	N. W.	.....	.....	.....	.....	.....	Light snow.
	10 23 a. m.	30.11	71	32	30.00	32	31	79	N.	23	2.64	...	Stratus	1-2	Cirrus	3-4	N.	.....	.....	.02	.....	.....	Do.
Thursday, May 22	2 0 p. m.	30.12	70	34	30.01	34	32	78	N.	28	3.92	...	Nimbus	1-4	Cumulus	3-4	N.	.....	10.35 a. m.	.02	.....	.....	
	5 23 p. m.	30.13	64	30	30.04	30	28	78	N.	34	5.78	...	0	0	Cumulus	4-4	N.	.....	.....	.....	34	29	
	9 0 p. m.	30.16	67	28	30.06	28	26	75	N.	33	6.12	...	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	1 23 a. m.	30.09	64	26	30.03	26	24	75	N. W.	33	5.44	...	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.23	70	27	30.12	27	25	76	N. W.	21	2.30	661	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	
	10 23 a. m.	30.21	64	34	30.12	34	32	79	W.	18	1.62	...	0	0	Cirrus	4-4	N. W.	.....	.....	.....	.....	.....	
Friday, May 23	2 0 p. m.	30.17	65	37	30.08	37	36	90	S.	26	3.38	...	Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Heavy snow.
	5 23 p. m.	30.11	64	32	30.02	32	31.5	94	S. W.	23	2.64	...	Nimbus	4-4	.....	.....	.....	.....	1.20 p. m.	.....	.06	36	Melted snow.
	9 0 p. m.	30.11	65	31	30.04	31	30	89	S. W.	31	4.80	...	Nimbus	4-4	.....	.....	.....	.....	.....	.....	.....	.....	Light snow.

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Meteorological record for the five days ending May 28, 1873.

STATION: ISLAND OF SAINT PAUL, BEHRING SEA.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM Dry bulb.	HYGROM Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS Kind.	LOWER CLOUDS Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	THERM. Maximum.	THERM. Minimum.	Remarks.
	1 23 a. m.	30.09	60	32	30.02	32	31.5	94	S. W.	23	2.64	....	Nimbus	4-4	.....	...	.....	.....	.....	.05	.....	.....	Melted snow.
	7 0 a. m.	30.01	60	32	29.93	32	31.5	94	S. W.	23	2.64	593	Fog.....	4-4	.....	...	.....	.....	.....	.....	.....	.....	Light snow.
Saturday, May 24..	10 23 a. m.	30.00	63	33	29.91	33	33	100	S. W.	21	2.20	....	Fog.....	4-4	.....	...	.....	.....	7.20 a. m	.01	.....	.....	
	2 0 p. m.	29.99	71	34	29.88	34	33.5	94	S. W.	22	2.42	....	Fog.....	4-4	.....	...	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	29.99	70	32	29.89	32	32	100	S. W.	27	3.64	....	Fog.....	4-4	.....	...	.....	.....	.....	.....	35	31	
	9 0 p. m.	30.01	66	31	29.91	31	30.5	94	W.	33	5.44	....	Stratus	4-4	.....	...	.....	.....	.....	.....	.....	.....	
	1 23 a. m.	30.05	61	31	29.97	31	30	89	N. W.	32	5.12	....	Stratus	4-4	.....	...	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	30.16	69	32	30.06	32	31	89	N. W	32	5.12	653	Nimbus	4-4	.....	...	.....	.....	.....	.....	.....	.....	Light snow.
Sunday, May 25....	10 23 a. m.	30.22	70	33	30.11	33	32	89	N. W.	27	3.64	....	Stratus	4-4	.....	...	.....	Night...	8.15 a. m	.01	.....	.....	Melted snow.
	2 0 p. m.	30.27	67	36	30.17	36	35	90	N. W.	18	1.62	....	Stratus	4-4	.....	...	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	30.30	71	33	30.19	33	32.5	94	N. W.	17	1.44	....	Fog.....	4-4	.....	...	.....	.....	.....	.....	36	31	
	9 0 p. m.	30.32	64	30	30.23	30	29.5	94	W.	18	1.62	....	Stratus	4-4	.....	...	.....	.....	.....	.....	.....	.....	
	1 23 a. m.	30.28	57	29	30.21	29	28	88	S.W.	23	2.64	....	Fog.....	4-4	.....	...	.....	.....	.....	.....	.....	.....	
	7 0 a. m.	30.19	60	32	30.11	32	31	89	S.W.	29	4.20	481	Fog.....	4-4	.....	...	.....	.....	.....	.....	.....	.....	
Monday, May 26 ..	10 23 a. m.	30.19	66	33	30.09	33	32.5	94	S.W.	29	4.20	....	Fog.....	4-4	.....	...	.....	.....	.....	.....	.....	.....	
	2 0 p. m.	30.12	66	34	30.02	34	33.5	94	S.W.	34	5.78	....	Fog.....	4-4	.....	...	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	30.08	67	33	29.98	33	32.5	94	S.W.	31	4.80	....	Fog.....	4-4	.....	...	.....	12.40 p. m.	.....	.00	34	29	
	9 0 p. m.	30.05	63	31	29.96	31	30	89	W.	41	8.40	....	Nimbus	4-4	.....	...	.....	.....	.....	.....	.....	.....	Heavy snow.
	1 23 a. m.	30.06	58	31	29.99	31	30	89	N. W.	34	5.78	....	Stratus	4-4	.....	...	.....	.....	.....	.03	.....	.....	Melted snow.
	7 0 a. m.	30.09	62	31	30.00	31	30	89	N. W.	29	4.20	756	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	Light snow.
Tuesday, May 27...	10 23 a. m.	30.12	69	33	30.02	33	32	89	N. W.	28	3.92	....	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	.....	
	2 0 p. m.	30.13	68	33	30.03	33	32	89	N.	26	3.38	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	5 23 p. m.	30.15	70	31	30.04	31	30	89	N.	26	3.38	...	Nimbus	1-2	Cumulus	1-2	N.	.....	.....	.01	34	31	
	9 0 p. m.	30.18	67	31	30.08	31	30	89	N.	35	6.12	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	1 23 a. m.	30.19	59	61	30.11	31	30	89	N.	32	5.12	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	
	7 0 a. m.	30.17	62	30	30.08	30	29	89	N	35	6.12	731	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	.....	Light snow.
Wednesday, May 28	10 23 a. m.	30.18	66	31	30.08	31	30	89	N.	36	6.48	....	Stratus	4-4	.....	...	.....	.....	7.15 a. m.	.01	.....	.....	Melted snow.
	2 0 p. m.	30.21	72	32	30.10	32	31	89	N.	17	1.44	....	Stratus	4-4	.....	...	.....	.....	.....	.....	.....	.....	
	5 23 p. m.	30.17	71	32	30.06	32	31	89	N.	17	1.44	...	Fog.....	4-4	.....	...	.....	.....	.....	.....	32	29	
	9 0 p. m.	30.17	70	31	30.06	31	30	89	N.	16	1.28	....	Fog.....	4-4	.....	...	.....	.....	.....	.....	.....	.....	

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Day and date of observation.	Time of observation.	Barometer.	Attached.	Exposed.	Corrected barometer.	Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction. (moving from—)	Commen'd.	Ended.	Amount of rain or melted snow.	Maximum.	Minimum.	Remarks.
Thursday, May 29	1 23 a. m.	30.00	61	28	30.01	29	27.5	94	N.	15	1.12	...	Fog	4-4	...	...	...	...	...	...	...	...	
	7 0 a. m.	30.03	60	31	29.95	31	30.5	94	N.	14	.98	456	Fog	4-4	...	...	...	...	...	...	...	...	
	10 23 a. m.	30.04	70	35	29.93	35	34	80	N.	16	1.26	...	Stratus	4-4	...	...	...	...	...	...	...	...	
	2 0 p. m.	30.03	69	35	29.91	35	34	69	N.	11	.60	...	Stratus	4-4	...	...	...	...	...	...	35	27	
	5 23 p. m.	30.02	70	35	29.91	35	34	69	N. W.	6	.18	...	Stratus	1-2	Cirrus	1-2	N. W.	...	...	...	...	...	
	9 0 p. m.	30.02	71	34	29.91	34	33	80	N. W.	4	.08	...	Fog	4-4	...	...	...	...	...	...	...	...	
Friday, May 30	1 23 a. m.	29.94	69	32	29.90	32	31	89	N.	7	.24	...	Fog	4-4	...	...	...	...	...	...	...	...	
	7 0 a. m.	29.96	69	35	29.86	35	34	90	N.	10	.50	225	Fog	4-4	...	...	...	...	...	...	...	...	
	10 23 a. m.	29.91	63	37	29.82	37	36	90	N.	11	.60	...	Stratus	4-4	...	...	...	...	...	...	...	...	
	2 0 p. m.	29.92	65	37	29.82	37	36	90	N.	8	.32	...	Stratus	4-4	...	...	...	...	...	...	...	...	
	5 23 p. m.	29.93	68	33	29.83	33	32	89	N.	7	.24	...	Fog	4-4	...	...	...	...	...	...	37	32	
	9 0 p. m.	29.95	71	31	29.84	31	30	89	N.	9	.40	...	Fog	4-4	...	...	...	...	...	...	...	...	
Saturday, May 31	1 23 a. m.	29.93	61	30	29.85	30	29.5	91	N.	9	.40	...	Stratus	4-4	...	...	...	...	...	...	...	...	
	7 0 a. m.	29.93	64	33	29.84	33	32	90	N.	7	.24	214	Stratus	4-4	...	...	...	...	...	...	...	...	
	10 23 a. m.	29.97	66	36	29.87	36	36	81	N. E.	6	.18	...	Stratus	4-4	...	...	...	...	...	...	...	...	
	2 0 p. m.	30.02	71	41	29.91	41	38	73	N. E.	8	.32	...	Stratus	1-4	Cirrus	1-4	S. E.	...	...	...	41	30	
	5 23 p. m.	30.02	70	36	29.91	36	34	80	N. E.	11	.60	...	Stratus	1-2	Cirrus	1-4	S. E.	...	...	...	...	...	
	9 0 p. m.	30.05	70	34	29.94	34	33	89	N. E.	8	.32	...	Fog	4-4	...	...	...	...	...	...	...	...	

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PAPER 15.

REPORT OF METEOROLOGICAL OBSERVATIONS MADE AT MOUNT WASHINGTON, NEW HAMPSHIRE, DURING THE MONTHS OF MAY AND JUNE, 1873.

WAR DEPARTMENT, OFFICE CHIEF SIGNAL-OFFICER,
DIVISION OF TELEGRAMS AND REPORTS FOR
BENEFIT OF COMMERCE AND AGRICULTURE,
Washington, D. C., August 15, 1873.

SIR: I have the honor to submit the following detailed reports of the special meteorological observations made in compliance with your instructions, at Mount Washington, New Hampshire, from May 1 to June 30, 1873. Two stations were occupied during May, and four during the month of June, and, in addition to their records, the regular observations made for the same period at Portland, Me., are given for purposes of comparison.

Instruments used at the several stations.

NO. 1.—SUMMIT.

Barometer No. 1797, (Green's;) instrumental error, —.005.
One extra barometer; not used.
Two standard thermometers, (Signal-Service pattern, Green's.)
One maximum and three minimum thermometers, (Green's.)
One standard hygrometer, (Signal-Service model, Green's.)
Two Robinson anemometers, (Signal-Service model,) with electrical attachments for self-registration.
Two wind-vanes, (Signal-Service model.)
One rain-gauge, (Signal-Service model.)

NO. 2.—RAILWAY-CAR STATIONED ABOVE JACOB'S LADDER.

One barometer, No. 184, (Green's;) instrumental error, —.028.
One extra barometer; not used.
Two standard thermometers, (Signal-Service model, Green's.)
Two hygrometers, (Signal-Service model, Green's.)
One Robinson anemometer, (Signal-Service model.)
One wind-vane, (Signal-Service model.)
One rain-gauge, (Signal-Service model.)

NO. 3.—WAUMBACK HOUSE.

One barometer, No. 186, (Green's,) instrumental error, —.011.
One extra barometer; not used.
Two standard thermometers, (Signal-service model, Green's.)
Two standard hygrometers, (Signal-service model, Green's.)
One Robinson anemometer.
One wind-vane, (Signal-Service model.)
One rain-gauge, (Signal-Service model.)

NO. 4.—BASE OF MOUNTAIN.

One barometer, (Green's,) No. 139; instrumental error, —.010.
One extra barometer; not used.
Two standard thermometers, (Signal-Service model, Green's.)
Two standard hygrometers, (Signal-Service model, Green's.)
One Robinson anemometer, with electrical attachment and standard Signal-Service register complete.
One wind-vane, (Signal-Service model.)
One rain-gauge, (Signal-Service model.)

The barometers were carefully compared with each other after arrival at the mountain, as shown in Sergeant Thornett's report, Paper "D," and also, after their return to this office, with the standard instrument. As the result of the latter comparison the errors of the barometers used at stations Nos. 2 and 3 were found to be as follows: barometer No. 184, —.028; barometer No. 186, —.011. Barometer No. 186 was turned

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e observer in charge of the summit-station in exchange for a defective barom-
s, and therefore its final error has not been determined.
A, B, and C show the instructions given the several observers; Paper D, the
port of Sergeant Thornett, and Papers E and F his monthly journals for May
Paper G is the journal of Sergeant Seyboth at the base station; Papers H
record of minute observations for May and June; Papers K and L, the record
urly observations for the same period, and Paper M the Portland observa-
which those made at 8.02 a. m., 5.02 p. m., and 11.27 p. m., were synchronous
e made at Mount Washington at 7.57 a. m., 4.57 p. m., and 11.22 p. m.
y respectfully, &c.,

H. W. HOWGATE,
Second Lieut. and Brt. Capt. U. S. A., Acting Signal-Officer and Assistant.
ig. Gen. ALBERT J. MYER,
hief Signal-Officer, U. S. A., Washington, D. C.

A.

WAR DEPARTMENT, OFFICE CHIEF SIGNAL-OFFICER,
DIVISION OF TELEGRAMS AND REPORTS FOR
BENEFIT OF COMMERCE AND AGRICULTURE,
Washington, April 19, 1873.

NT: Two series of special observations will be made during the month of May
ation, in connection with a station at the base under charge of Sergeant Sey-
se observations will be made at the times and in the manner set forth in the
py of Sergeant Seyboth's instructions, which will apply to your station as
r as the making and recording of the observations are concerned. The ex-
ained by you last year in connection with a similar enterprise will enable you
any difficulties encountered at that time, and to render valuable assistance
y at base. Your attention is called especially to the instructions in reference
ite observations to be made for one hour each day, and the times indicated.
ar reports will be kept up as usual.
r respectfully,

H. W. HOWGATE,
Second Lieut. and Brt. Capt. U. S. A., Acting Signal-Officer and Assistant.
R. THORNETT,
ount Washington, N. H.

B.

WAR DEPARTMENT, OFFICE CHIEF SIGNAL-OFFICER,
DIVISION OF TELEGRAMS AND REPORTS FOR
BENEFIT OF COMMERCE AND AGRICULTURE,
Washington, D. C., April 19, 1873.

T: A series of observations at the base of Mount Washington, in connection
ation on the summit of the mountain, will be made under your supervision
month of May next, beginning at 6 a. m. of the 1st, and terminating at
of the 31st of the month.
rvations of all instruments will be made daily at the following hours, (local
m., 2 a. m., 3 a. m., 4. a. m., 5 a. m., 6 a. m., 7 a. m., 7.57 a. m., 9 a. m., 10 a. m.,
m., 1 p. m., 2 p. m., 3 p. m., 4 p. m., 4.57 p. m., 6 p. m., 7 p. m., 8 p. m., 9 p. m.,
1.22 p. m., and 12 midnight, making twenty-four observations each day.
rvations will be the same in all respects as those taken at regular stations,
e entered in the usual manner upon Forms 4, which forms will be brought
erson to this office, when ordered in, unless otherwise instructed. In addi-
e full observations, a special series will be made of the barometer alone,
s of one minute for one hour daily.

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From the 1st to the 10th days of the month, inclusive, these special obs
begin at 8 a. m., and continue until 9 a. m.; from the 11th to the 20t
month, inclusive, they will begin at 2 p. m., and continue until 3 p. m.;
21st to the 31st of the month, inclusive, will begin at 9 p. m. and termina

This series of observations will be kept distinct from that made hourl
recorded on separate sheets of Forms 4. If it is found that there is not s
to fill up the Forms 4 on station, besides attending to the other necessa
part of the duty can be left until the return of your party to this city, bu
nal Record" must be carefully kept, and the observations entered wh
directed in the instructions heretofore issued from this office.

Especial pains must be taken to make these readings accurate to thous
inch, and the temperature of the attached thermometer will be noted a
part of each observation. Upon your arrival at the base of the mountai
once establish telegraphic communication with the observer at the sumn
this purpose the cable over which the regular reports from that station
will, if practicable, keep this communication unbroken during the whol
remain on duty at the lower station.

You will personally compare the two barometers furnished you by th
the standard barometer at the summit-station, noting carefully the differ
readings, and reporting the same on the sheet of Forms 4, used for the firs
of observations. This comparison of barometers must be made before the
ing the first observation. As the observations at both stations must be
the time-pieces used will be carefully compared and adjusted before the
are commenced, and after that time will be adjusted three times daily,
at intervals of eight hours each, as arranged by you with observer in char
station. Two minutes before the time for taking each hourly observa
call up the observer at the summit-station, and after getting his ackn
will prepare for taking the observation. The signal for reading the baro
sent from your station one minute before the time for each reading, an
ments will be read in the following order:

1. Attached thermometer.
2. Barometer.
3. Exposed thermometer.
4. Hygrometer.
5. Anemometer.
6. Wind-vane.
7. Rain-gauge.

The two assistants detailed for duty with you have been selected for
account of their previous good conduct and the ability they have shown
agement of regular stations. It is believed that either of them can safe
to make the observations alone during a part of each twenty-four hou
lessen your own labors materially. You will therefore divide the day int
of eight hours each, taking one tour yourself, and assigning one to each o
ants. The responsibility of keeping the records, of insuring the accuracy
vations, and of making such reports of them to this office as may be ca
devolve upon you, and the work must be done with this fact kept consta

The following instruments and supplies will be furnished you at this of
be taken to the station under your immediate charge:

2 barometers.
2 thermometers.
2 hygrometers.
1 anemometer, (self-registering.)
1 wind-vane, (small.)
1 rain-gauge.
1 box-sounder.
15 cups Daniell's battery.
200 feet insulated wire.
30 pounds sulphate of copper.
Full supply of blank books, Forms 4, stationery, &c.

The wind-vane and anemometer can be exposed on the roof of the
House, and the rain-gauge in an open space near Marshfield, wher
readily accessible at all hours. The other meteorological instruments
posed in the telegraph-office, where the telegraph instrument can be put in
circuit for exchange of signals or other communications by means of the
in the office. Board for yourself and assistants can be had from Mr. N
larvy, in charge of railroad-station. Mr. Aiken, of the Mount Washingt
has kindly given this office permission to use such facilities at the statio
necessary to carry out your instructions in this matter. You will be careful
buildings and other property of the railroad company occupied or used by
party in as good condition as you found them. On the completion of th

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forth in this communication, you will remain at your station until orders and transportation are received from this office, but need not continue the observations after the 31st of May, unless otherwise instructed before that date. Should one or more of your party become sick, or in any way become unfit for duty, the fact, with nature and probable duration of illness or injury, will be promptly reported by telegraph to this office, in order that suitable action may be taken about supplying additional assistance, if necessary. The value of these special observations depends wholly upon their being made synchronously at the upper and lower stations, and especial attention must be paid to the accurate comparison of time, as before ordered.

Very respectfully,

H. W. HOWGATE,

Second Lieut. and Brt. Capt. U. S. A., Acting Signal-Officer and Assistant.

Sergt. ROBERT SEYBOTH,
Washington, D. C.

C.

WAR DEPARTMENT, OFFICE CHIEF SIGNAL-OFFICER,
DIVISION OF TELEGRAMS AND REPORTS
FOR THE BENEFIT OF COMMERCE,
Washington, D. C., May 24, 1873.

SERGEANT: The special series of observations ordered for the month of May at your station, and that at the base, as per inclosed copy of instructions, dated April 19, 1873, will be continued during the month of June at the same hours and times as set forth therein at both stations, and also at the two new ones to be established June 1, as per order of this date. All these stations will be under your general supervision, and you will be held responsible for their successful management and working. The two new ones will be connected by telegraph with the present stations, putting the instruments sent for them on the line, there being battery enough now there, it is believed, to work all satisfactorily.

As it is desirable to have the stations as nearly equidistant from each other as practicable, it is suggested that No. 2 be put at the "Gulf tank," and No. 3 at the "Waumback," if it can be done so as to work properly. If this cannot be done, you will do the next best that is practicable, and report your action, with locations selected, to this office. You will see that full and complete records are kept of all observations at the several stations, and that they are brought to this office as per original instructions. The *minute* observations will be made at the same hours, and on the same days of the month, as ordered for May.

Very respectfully,

H. W. HOWGATE,

Second Lieut. and Brt. Capt. U. S. A., Acting Signal-Officer and Assistant.

Sergt. A. R. THORNETT,
Mount Washington, N. H.

D.

SUMMIT OF MOUNT WASHINGTON, NEW HAMPSHIRE,
June 5, 1873.

SIR: Acting under instructions from the Chief Signal-Officer, I made application, in the latter part of last month, to Mr. Walter Aiken, of the Mount Washington Railroad Company, for permission to occupy two points on Mount Washington, New Hampshire, as signal-stations, during the month of June, 1873, for the purpose of making a series of special meterological observations.

Mr. Aiken responded by placing the "Waumback House" at the disposal of the

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signal-service for the time and purpose above mentioned; as also a rai altered as to form a tolerable protection in ordinary weather, which was b the base and placed on the upper ledge of "Jacob's Ladder," in juxtapos two-mile post.

The assistant observers sent to fill the new stations arrived in Littl on the 28th of May, and I telegraphed to Private Allen L. Bowie, di not to leave that town without first assuring himself that the stores and n property, purchased for the comfort of the men, had been forwarded to t the articles were not ready for transportation, Private Bowie considere reach the base of the mountain without delay, and trust to the promises o men to have the freight forwarded in good season. But, after waiting unt ing of the 31st of May, I was obliged to take a team from the base, and, over-night, succeeded in furnishing the stations on the 1st of June.

On May 30 the stations were opened, and instruments mounted. Tel munication was established, on the same day, by running the cable int and attaching it to the box-sounders brought from Washington. Supplies and I filled up the time in passing between the stations to satisfy myself important had been forgotten.

The barometers were compared with those at the base and summit stat 31. The following are the uncorrected readings of the several instrument

Time.	Station No. 1.*		Station No. 2.		Sta
	Att'd ther.	Bar.	Att'd ther.	Bar.	Att the
9.10 a. m	63	24.002	63	23.970	67
9.20 a. m	62	24.002	61.5	23.959	63
9.30 a. m	61.5	24.000	62	23.950	63
9.40 a. m	62	24.000	63	23.955	63
9.50 a. m	62.5	24.000	64	23.970	63
10.00 a. m	63	24.005	64.5	23.975	63
10.10 a. m	62	24.016	64	23.980	63

Time.	Station No. 2.		Station No. 3.		Sta
	Att'd ther.	Bar.	Att'd ther.	Bar.	Att the
1.10 p. m	59	27.537	57	27.548	60
1.20 p. m	60	27.538	58	27.549	60
1.30 p. m	60	27.550	59	27.543	61
1.40 p. m	61	27.539	59	27.550	61
1.50 p. m	61	27.539	60	27.555	62

* Instrumental error, +.005.

A copy of the following was handed to each observer in charge of a sta guidance during the month of June, 1873:

SUMMIT-STATION, (
Mount Washington, New Hampshire, Ma

On and after June 1, 1873, the time for making the observations on the tions will be regulated as follows:

Station No. 1 will give the time for adjusting the time-pieces at the sev at 8.30 a. m., 4.30 p. m., and 12.30 a. m. daily.

Station No. 4 will call up each station at the times specified for making observations, and receive the usual acknowledgment.

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TELEGRAPH CALLS.

No. 1—M. W.
No. 2—S. O.
No. 3—D. S.
No. 4—J. S.
call for all stations—Numeral 1.

ALFRED R. THORNETT,
Observer-Sergeant Signal-Service, U. S. A.

STATION NO. 2

exactly at the two-mile post, which is on the upper ledge of "Jacob's Lad- about two hundred yards below the "Gulf tank." Its bearing from the sum- west of north. This station consists of a railroad-car 23 feet six inches long 3 inches wide, and 6 feet 3 inches in height, interior measurement, clap- nd braced to secure it as much as possible from the influence of extraordi- s. There are two windows and one door.
indow: 2 feet 2 inches high, by 2 feet 4 inches wide.
indow: 2 feet 4 inches high, by 2 feet 6 inches wide.
)pens to the north, and is 5 feet 10 inches high, by 2 feet 6 inches wide.
ion of instruments.—Barometer-cistern 5 feet 3 inches above the ground. eter and hygrometer (slanting roof-shelter) 1 foot from the panes of the win- g north, and in the open air, and the bulbs are 5 feet above the ground. ter and anemoscope exposed upon the roof of the building. The rain-gauge upon the adjacent rocks, and at a sufficient distance from any disturbing in-

STATION NO. 3.

ce of this station is situated on the ground-floor and in the south end of the ack House," which stands about fifty yards above the first mile-post, and tly nearly two miles from the summit.
of office, 13 feet; width of office, 12 feet; height of office, 8 feet.
indow: 2 feet high, by 2 feet 8 inches wide.
indow: 2 feet 3 inches high, by 1 foot 8 inches wide.
r leading from the office to a sleeping-apartment is 6 feet 7 inches high, by 2 es wide.
door leads to an unoccupied room, and measures 6 feet 2 inches high, by 2 es wide. Its bearing from the summit is 10° north of west.
ion of instruments.—Barometer-cistern and thermometer-bulbs 7 feet 6 inches ground. Thermometer and hygrometer exposed 1 foot from a window facing of-shelter,) and in the open air. Anemometer and anemoscope upon the roof lding. Rain-gauge exposed on the ground, and free from any obstruction.
tance from the base to the summit along the line of railway is nearly three refore the several stations are almost equidistant. It would be difficult to them in better positions.
ers and assistants worked with a will to have all ready by the 1st of June, thing is being done to secure a reliable record of the work performed during .

ve the honor to be, sir, very respectfully, your obedient servant,
ALFRED R. THORNETT,
Observer-Sergeant Signal-Service, U. S. A., in charge of Stations.

IEF SIGNAL-OFFICER OF THE ARMY,
Washington, D. C.

E.

Daily journal for the month ending May 31, 1873.

SUMMIT OF MOUNT WASHINGTON, NEW HAMPSHIRE,
June 1, 1873.

1873.—The barometer gradually rose from 30.11 at 1 a. m., to 30.15 at 8 a. m., ating but very little; was very steady at 30.05 to 30.07 after 2 p. m.; mean r, 30.10. The temperature fluctuated between 22° and 25°; mean thermome- The day opened with a steady northwest wind, which changed to west at

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10.30 a. m. and remained steady afterward. From 1 a. m. to 8 a. m. t
steadily decreased from forty-two to fifteen miles per hour at 4 p. m., and
brisk wind at night. Clear weather until 9 a. m., when a few cumuli app
ing with the prevailing wind, and gradually increased in volume until
about one-half covered. These clouds disappeared as night approached,
sky, above the summit, clear. About one-quarter stratus streaked the hori

May 2.—Up to 9 a. m. the barometer was steady at 30.06 and 30.07.
time a steady decrease of pressure was observed, and at midnight the
gave a reading of 29.82; mean barometer, 29.956. The temperature wa
24° and 25° until 6 a. m., and then steadily increased to 32° at midday.
decrease took place through the rest of the day, to 25° at last observa
thermometer, 28°.0. The wind continued to blow steadily from the west
early part of the day, became fitful in the early afternoon, backed to s
at 1.30 p. m., and remained so for the rest of the day. Brisk and fresh vel
to a moderate gale at night. The wind moderated very preceptibly throu
light hours. Fair weather up to 1 p. m., when the clouds descended and
mountain, culminating in a steady fall of light snow at 2.45 p. m., whic
all day. At 4 a. m. a small quanty of cirro-stratus clouds was observed;
place to a large quantity of cirro-cumulus at 6 a. m., which in time gradu
distinct formation and became absorbed in a uniform veil of stratus in the
of the forenoon. The upper clouds moved with the prevailing wind.

May 3.—The barometer continued falling to 29.70 at midday, and the
nearly steady until 9 p. m., when the mercury gradually rose to 29.76 at la
tion; mean barometer, 29.716. The temperature was steady at 24° and 2
m., then gradually decreased to 19° at midnight; mean thermometer, 22°
to 4 a. m. the wind oscillated between the points of south and east, settlin
4.50 a. m.; between 6 and 7 p. m. it suddenly chopped round to northwes
north shortly after, and remained steady for the rest of the day; moderate-g
prevailed through the early part of the day, gradually rising, as evening a
a storm, averaging sixty miles per hour. Snow ceased falling at 1.25 a. m
weather continued threatening until it recommenced falling lightly at 6.15
continued until 6.10 p. m., when the wind, suddenly changing to the
brought clearing weather. The clouds rose rapidly above the summit, and
sive view of the surrounding country was obtained. As night approached
(stratus) gradually contracted, so that about one-half of the sky was visib
weather set in. The mountain is now covered with snow to a considerable
some places the drifts are almost beyond measurement, rising and falli
waves from "Jacob's Ladder" to the summit. Below "Jacob's Ladder"
varies from 2 to 8 or 9 feet, but shows signs of breaking up.

May 4.—The barometer rose gradually to 29.92 at 4 p. m., and then fell
midnight; mean barometer, 29.849. The temperature was very steady u
at 20° and 21°; rose to 24° at 11 a. m., where it remained steady until aft
then steady at 23° until 6 p. m., and at 22° for the rest of the day. Mean th
21°.7. At 6.30 a. m. the wind backed from north to northwest, and to west
m., blowing steadily from the latter quarter up to midnight. Storm veloc
to "high" and moderate "gale" through the middle of the day, but rose to
per hour in the afternoon and late at night. About one-quarter stratus c
upon the horizon in the early morning. This gradually disappeared, and f
until 2 p. m. only a slight haze (below the summit) thickened the atmosphere
2 and 3 p. m. cumulus clouds, moving from the northwest, partially cover
but were dissipated a little before sundown, and clear weather prevailed
little before midnight, a small quantity of stratus appeared first above the

May 5.—The barometer continued falling to 29.82 at 5 a. m.; after that h
(irregularly) through the day to 30.08 at last observation; mean barometer, 2
temperature fluctuated but very little. It was steady at 22° from midnight
at 23° from 10 a. m. to 5 p. m., and then gradually decreased to 20° at midni
thermometer 21°.7. A very steady west wind all day, changing by northwe
at night. Up to 9 a. m. we experienced heavy gale and storm velocity, w
ually abated during the forenoon, and settled to a brisk wind in the early
From 4 p. m. the velocity oscillated between brisk wind and moderate gal
rising to a heavy gale at 11 p. m. Fair weather opened the day, but tow
dense masses of cloud accumulated over and around the summit. At 3.45
began falling steadily, and continued until 10.30 a. m. Cloudy weather
p. m., when the clouds appeared to be thinning, and shortly after 2 p. m
above the summit, showing about three-fourths cumulus moving from the
clear atmosphere below. The clouds gradually disappeared as the day pass
a slight haze hanging over the country below the surrounding summits, and
set to midnight the weather was clear. For several weeks past we have e
considerable difficulty in cutting our way out of the depot and in lettin
through the windows. Enormous drifts of snow have formed about the bui

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a passage is cut out, and the windows cleaned, the wind drives in the snow the gaps, so that the force is usually divided into cook, observer, and snow- consequently time does not hang very heavily upon our hands. The temper- been, and is, so constant below 32°, that it is difficult to say when this us state of things is going to change. One drift reaches more than half way of the depot.

-The barometer rose to 30.21 at midday, and the readings showed very little during the remainder of the day. The instrument gave evidence that the f the atmosphere was very uneven, and a great deal of care had to be exer- le the minute observations were being made, to insure a correct record of the the mercury, which was continually oscillating and balking the eye of the At this station we frequently experience similar trouble. Mean barometer, he temperature was steady from 19° to 22°. It increased from 19° at 1 a. m. a. m., stood steady at 22° until 7 p. m., and then gradually decreased to 20° ht. Mean thermometer 20°.5. The wind continued from the north with e velocity, until it changed rapidly to west between 1 and 2 p. m., and that point for the rest of the day. At sunset the velocity decreased to high shortly after increased to a heavy gale, and between 11 p. m. and midnight maximum for the day of sixty miles per hour. Clear weather prevailed. A which hung over the country below the summits in the early part of the ne very dense as daylight ended. The atmosphere was comparatively clear m. The only clouds that were to be seen were a few isolated stratus, which now and then through the day, and always near the horizon.

-The barometer rose to 30.41 at last observation. Mean barometer, 30.380. rature decreased to 19° at 3 p. m., and remained steady until after 6 a. m., eady increase set in, the mercury jumping from 24° to 28° between 10 and 11 to 32° at 12.22 p. m. From 1 p. m. a gradual decrease took place, and at the thermometer read 26°; mean thermometer, 26°.2. The wind continued vest until 6 a. m., and then gradually veered round by northwest to north, ed to west at midday, and continued so until it died away to "calm" at 7 tly after a breeze sprang up from the north, when it remained steady for the day. Storm velocity steadily diminished to a fresh breeze at 9 a. m., and l calm at sunset. From the time that the north wind arose in the evening y steadily increased to "brisk," and varied but very slightly through the day. Throughout the twenty-four hours the lower country was covered t haze, and a few cirro-stratus clouds appeared and disappeared at intervals ours. The sun's heat is beginning to make a decided difference in the ap- f the mountain. A large quantity of snow has melted within the last two he railroad-track is steadily emerging from its winter covering. The rocks g out, and a few days of fine weather will leave them comparatively clear. p. m. the horizon between the points of north and northwest was fringed roral belt, which had the appearance of a lambent flame of a deep-red color , and of a light yellow at the tips. The aurora was almost stationary, re- h little apparent change for nearly thirty minutes, and then gradually died

The barometer remained stationary at 30.38 to 30.42 until 3 p. m., and then dropped to 30.31 at midnight. Mean barometer, 30.382. The temperature reased from 25°, in the early morning, to 36° at 11 a. m.; was steady at 35° til 4 p. m., and gradually decreased to 30° at last observation. Mean ther- 1°.7. The wind continued from the north with greatly diminished velocity, l calm between 3 and 4 a. m. From 9 a. m. to 4. p. m. there was a gentle breeze from the north, inclining a little to northwest. Calm for an hour and 6 p. m., then brisk wind from the northwest (changing again to north a.) until the close of the day. The ravines and valleys are still filled with e. To-day the sky has been from one to three-fourths covered with a great cirrus cloud, well-defined cirro-stratus predominating. At times immense of pure cirrus were observed, but they were rapidly divided into the various to which this cloud is subject. These clouds stretched across the sky in es, which appeared to converge in the east and west. They moved very n the northwest. A broad halo encircled the moon. The day has been very e snow is certainly going away rapidly. The temperature has been higher) than at any time since the year began. Altogether we begin to feel that really gone, and that summer is approaching.

From 1 a. m. until 2 p. m. the barometer oscillated between 30.24 and 30.28, ropped to 30.18 at last observation. Mean barometer, 30.231. The temper- ually decreased to 24° at 6 a. m., and remained steady for nearly two hours steadily increased to 28° at 11 a. m., and from that hour the mercury between 26° and 29°; mean thermometer, 27°.2. Shortly before 1 a. m. the ged direction (very suddenly) to southeast, where it remained steady until . From that time until 10 p. m. it was unsteady, frequently veering to east

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and back to southeast, but settled to southeast late at night. High and g
prevailed. Fair weather prevailed until 3 p. m., when it became cloudy.
p. m. sleet began to fall; stopped at 10.30 p. m.; threatening weather closi
Early in the morning a few stratus clouds appeared at intervals, but the prin
were ill-defined cirro-stratus, moving with the prevailing winds. From
sky was partially covered with a light veil of stratus, apparently of a un
ness, and rising high above the summits. After 4 p. m. the ravines began
dense masses of cloud which were rapidly advanced by the wind from th
until, at 4.30 p. m., the summit was completely shrouded, and remained so
of the day. The sleet fell in minute particles, and was not very heavy.
been driven into the base to-day. This is the first time (this year) that
been able to pass over the last two miles to the mountain. The mill is
ready to work next week. Last year it started on the 5th of May.

May 10.—The barometer fell slightly through the early part of the day
a. m. rose steadily to 30.17 at last observation. Mean barometer, 30.151.
m. the temperature oscillated between 28° and 30°, steadily increased to
early afternoon, and was very unsteady afterward, between 32° and 35°.
mometer, 33°.5. After blowing unsteadily from the south and southwest i
ing the wind settled to the former point at 8 a. m., and remained steady u
when it became very uncertain, coming from all points between southwest
west, and continued to be unsettled during the latter part of the day; ca
night. Heavy gale and storm velocity gradually subsided after 10 a. m. to
last observation. Threatening weather opened the day; heavy rain fell
8.22 a. m., and the summit was shrouded with saturating clouds until 3.30
clearing weather set in, and from sunset until midnight the weather was f
latter part of the day the ravines were filled with an immense quantity of
which formed a level and unbroken sea as far as the eye could reach, giving
peaks that were not covered the appearance of small islands, and utterly
the surrounding country from observation. A few cirrus clouds moved w
vailing wind.

May 11.—The barometer fell throughout the day to 29.88 at last observa
barometer, 29.994. The temperature fluctuated between 32° and 38°, and w
even, sometimes falling or rising 3° in less than thirty minutes. The highest
was observed at 2 p. m. Mean thermometer, 35°. Between 1 and 2 a. m. a
arose from the southwest, which backed to south at 11 a. m., and then rema
for the rest of the day. The velocity oscillated between gentle and high
day opened with very fine weather. This morning the appearance and pos
clouds were much the same as when last observed, but the illusive nature
was much enhanced by the faithfulness with which the clouds simulate
known features of the great watery element. Masses of cloud rushed b
mountain-peaks that arose above them, forming cataracts of great
beauty. Breakers rolled and tossed above the mountains immediately
surface, and pretty bays were created in the irregular shores of the vario
summits. Waves of light and shade of so rare a kind swept over the wh
when the sun rose above the horizon, that words fail to convey the barest
felt by those who witnessed the sublime creation. The illusion was so co
we almost forgot the physical features of the surrounding country in the
tion of the wonderful beauty of the aerial ocean which shut it out from vie
after 7 a. m. the summit was suddenly enveloped in dense clouds, showe
and at 2.47 p. m. heavy rain began. This continued up to 11.30 p. m., but
in quantity as the day wore on. Cloudy weather at last observation.

May 12.—The barometer fell steadily in the early morning, and then rem
paratively steady for the rest of the day. Mean barometer, 29.756. The
decreased to 32° at 3 a. m.; was very steady at that point until 8 p. m., whe
ally decreased and the mercury settled to 29° for the last three observati
thermometer, 31°.5. At a few minutes past 5 a. m., the wind abruptly
north, backed to west between 2 and 3 p. m., and to northwest shortly after
velocity gradually increased from gentle to high wind, and to a heavy gal
set. Dense clouds covered the summit in the beginning of the day. Light
falling at 2.40 a. m.; turned to sleet at 5.30 a. m., and ceased at 8.12 a. m
3 p. m. and sunset an interval of fair weather took place. After sunset th
surrounded and covered the summit, no change for the better being observed
rest of the day. We are now very busy cutting through the large snow
have formed within and without the depot.

May 13.—The barometer fell steadily to 29.46 at 6 p. m., and then gradu
29.58 at midnight. Mean barometer, 29.587. The temperature was unste
morning, fluctuating between 27° and 30°; rose to 34° at 1 p. m., and from
decreased to 26° at last observation. Mean thermometer, 29°.5. The wind
the west between 1 and 2 a. m., and to northwest shortly before 2 p. m.,

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steady for the rest of the day. High and gale velocity all day. The morning opened with fair weather; a few cirro-cumulus clouds moved with the prevailing wind, and from one to two-fourths stratus hovered over and hung about the neighboring mountains. Early in the forenoon the summit became covered with dense clouds, heavily charged with moisture, and the weather for the rest of the day was very cloudy and threatening. From midday until midnight we were favored with frequent showers of light rain and sleet. These attempts were very insignificant, and the amount collected barely enough to allow of a measurement being made.

May 14.—The barometer oscillated considerably through the day, and gradually fell to 29.42 at last observation; mean barometer, 29.523. The temperature gradually decreased to 19° at night. From midday until 10 p. m., the mercury was steady at 22° and 23°; mean thermometer, 23°. The wind changed to west shortly after 1 a. m., and remained steady from that point until 10.30 p. m., when it returned to northwest. The velocity fluctuated between high wind and storm, reaching a maximum of sixty miles per hour. Through the daylight hours there were frequent lulls, the velocity diminishing to thirty miles per hour. The weather continued to be very cloudy and disagreeable; light snow began falling at 4.15 p. m., and continued for the rest of the day, coming down very heavily after 7.30 p. m. At midnight I estimated that six inches had fallen on a level, but it was difficult to make an accurate calculation. The engineers have arrived at the base, and intimate that they expect to run a freight-train to the summit early in the coming week. The snow is at a standstill, and frozen into solid masses of ice.

May 15.—The barometer rose steadily all day to 29.87 at last observation; mean barometer, 29.734. A rise of 0.16 between 8 a. m. and midday was forwarded at 5 p. m. I was unable to raise Littleton at the proper hour for telegraphing the report. The temperature increased from 19° at 2 a. m. to 24° at 11 a. m., remained very steady at 24° and 25°, sinking to 23° at midnight; mean thermometer, 23°.2. A northwest wind changed to west early in the afternoon, and remained steady for the rest of the day. Storm velocity in the morning, fluctuating between fifty and seventy-two miles per hour. It gradually decreased to a steady, brisk wind, and from 3 p. m. until midnight it varied very little. Heavy snow continued through the early morning, ceasing at 4.10 a m. As the forenoon advanced there was a material difference in the density of the clouds. They were much more transparent, and at times the sun shone through them very brightly. Toward the close of the afternoon they became almost opaque, and the weather was cloudy until after 10 p. m., when the clouds continued to the south and southeast, covering about one-fourth of the sky. A display of auroral streamers was observed between the points of north and east. This took place between 10.30 p. m. and midnight. I went to the base this evening with mail. Preparations are being made to run a train to the summit at the earliest opportunity.

May 16.—The barometer fell to 29.81 at 6 a. m., rose to 29.88 at 11 a. m., and then remained comparatively steady through the rest of the day. Mean barometer, 29.873. The temperature gradually increased to 29° at 1 a. m., remained steady at 28° and 29° during the afternoon, and gradually decreased to 27° at night. Mean thermometer, 27°.2. The wind oscillated between west and northwest in the forenoon, settled to west at midday, and was very steady afterward. Brisk velocity prevailed. High wind at night. With the exception of an interval of fair weather, between 5 and 8 a. m., the weather was very cloudy. I returned to the summit this morning with a load of mail and other necessaries, accompanied by two carpenters employed by the railroad company.

May 17.—The barometer was comparatively steady all day, showing a slight increase of pressure in the afternoon and at night. Mean barometer, 29.878. The temperature rapidly decreased from 27° in the early morning to 23° from 7 to 8 a. m., rose to 25° at 10 a. m., and fluctuated between 25° and 27° for the rest of the day. Mean thermometer, 25°.2. Between 6 and 7 a. m. the wind changed to northwest, and then held steady. The velocity oscillated between high and fresh winds. The weather was very unsettled; snow fell lightly and spasmodically at all hours. From 6.05 a. m. it fell very steadily, and continued to do so after the last observation was received. It is perhaps worthy of record that, on the 9th day of May, 1872, the temperature rose to 47 degrees, and that the highest observed temperature for the present year only reaches to 38°.

The snow on the summit is becoming deeper every day, and unless a rapid thaw sets in at an early date, this summer season will be one of notable brevity.

May 18.—The barometer showed as light but decided increase of pressure. Mean barometer, 29.933. The temperature fluctuated between 22° and 26°. Mean thermometer, 24°.2. Steady, brisk, and high wind, falling off to "fresh" for an hour or two in the middle of the day. Snow ended at 11.35 a. m. The sun broke through the clouds, now and then, for a few minutes at a time, but cloudy weather prevailed. Fair at night. The weather and general appearance of things outside are too monotonous to afford much matter for record.

May 19.—The barometer fell to 29.87 at 5 a. m., and then rose steadily to 30.14 at last observation. Mean barometer, 30.046. Up to 8 a. m. the temperature was very steady

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at 23°; increased to 25° in the middle of the day, and after 3 p. m. never r
a degree from 26°. Mean thermometer, 25°.2. The wind continued from the
through the morning, backed to west in the early part of the forenoon, and
went round by the northwest in the afternoon to a steady blow from
Heavy squalls in the early morning, sometimes up to sixty miles per hour.
m. the velocity suddenly diminished and oscillated between fresh and brisk
day opened with fair weather; only a few stratus clouds darkened the hor
lasted but a short time. Soon after 3 a. m. dense masses of cloud formed in
diate vicinity of the mountain, and rapidly ascended until the summit was
capped. Between 9 and 10 a. m. these clouds rose to a great height, in
fleecy veil, which frequently changed in appearance, but never assumed
defined formation. As the day wore on the clouds gradually contracted
disappeared. From 8.30 p. m. the sky was perfectly clear. A shower
streamers appeared in the northeast at and after 10 p. m.; they were very in
both in body and color.

May 20.—A steady increase of pressure continued throughout the twenty-
The barometer was almost steady after 9 p. m., and read 30.33. Mean
30.297. The temperature increased from 25° in the morning to 34° at 3 p. m
remained steady until after 4 p. m., then gradually decreased to 30° at (and
m. Mean thermometer, 30°.2. Steady north wind, with fresh and brisk vel
ually died away to a dead calm at a little past 2 p. m. This lasted until
when a light west wind arose. As the day advanced the direction frequent
to southwest, and settled at that point shortly before midnight. After 8 p.
locity increased to a fresh breeze, averaging seven miles per hour. Up to
noon the sky was free from clouds, and everything within view stood o
relief. Through the afternoon about one-fourth cumulus appeared, moving
north and northwest, a light haze over the lower country, and a few stra
streaked the sky in disconnected patches. As the daylight waned the clo
peared, and the night was very clear and placid. Sergeant Sackett brough
to-day.

May 21.—The barometer continued to show a decided increase in the pres
atmosphere until the mercury rose to 30.36 in the forenoon. After mid-day
fall set in, and at last observation the instrument read 30.26. Mean barome
The temperature was comparatively steady between 27° and 30° through t
gradually increased, after sunset, to 32° at midnight. Mean thermometer, 3
early part of the day the wind came very steadily from the southwest, bu
frequently afterward, making it very difficult to ascertain the true direct
peared to have a greater tendency from southwest and west than from any o
but frequently swinging to all points of the compass. The velocity fluctuate
"gentle" and "brisk," and did not exceed twenty-five miles per hour at a
the day. Up to 10 a. m. clear weather prevailed; only a small quantity
cloud streaked the eastern sky. The upper clouds varied in quantity and a
changing rapidly from well-defined cirrus and cumulus to all their recogni
cations, and oftentimes stretched across the sky in a semi-transparent
stratus clouds partially covered the sky at a considerable altitude, shortly b
set, and remained nearly stationary until 10 p. m., when they slowly desc
covered the summit, and the weather became decidedly moist. A peculiar
colored halo surrounded the sun late in the forenoon. Although in the early
the prevailing wind came from a southern point, the upper clouds moved from
west. Later in the day they followed the course of the prevailing wind, c
point of observation. Heavy rain began falling at 11.35 p. m., and continu
following morning. The mill at the base of the mountain commenced runn
sixteen days later than it began last spring. The snow is moving off very
May 22.—The barometer fell very irregularly to 30.20 at last observati
barometer, 30.207. The temperature was steady between 30° and 34°, u
night, when it suddenly increased from 32° at 11.22 p. m., to 36° at midnig
thermometer, 33°.2. The wind oscillated between west and southwest, nev
ing steady for five minutes together. High and brisk velocity prevailed.
continued through the early morning; ended at 4.46 a. m. Heavy saturat
covered the summit throughout the twenty-four hours. A vast quantity o
been swept from the mountain during the last two days. Jacob's Ladder
off, and from the Waumback House to the base the ground is bare.

May 23.—The barometer fell steadily all day to 29.97 at last observati
barometer, 30.128. The temperature increased to 43° at 7 p. m., stood steady
p. m., and then decreased to 41° for the last three observations. Mean the
40°.0. Southwest wind in the morning changed to west at 7 a. m., and co
with an occasional puff from the southwest, for the rest of the day. Fre
velocity until after sunset, when it rapidly increased to a storm of sixty
hour. Cloudy weather continued until after 9 p. m. From that time th
about three-fourths covered with stratus clouds, which hung about the ne

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summits. At 10 p. m., and for about thirty minutes after, we observed frequent flashes of sheet-lightning, which passed a considerable quantity of electricity through our stove pipes. The lightning appeared to emanate from a mass of inky-black clouds situated in the southwest, and in close proximity to Mount LaFayette. Mr. Aiken tried to run a train to the summit to-day, but failed in the attempt through a boiler-pump getting out of order. Men were employed in shoveling snow from the track, in some places to a depth of 5 and 6 feet.

May 24.—The barometer oscillated between 29.97 and 29.73. The maximum pressure occurred at 1 a. m. and the minimum at 5 p. m. Mean barometer, 29.846. The temperature gradually decreased to 35° at 8 a. m., and then steadily increased to 41° in the afternoon. After 5 p. m. the thermometer showed a steady temperature of 37°. Mean thermometer, 37°.7. There was a steady west wind all day. The velocity rose to seventy-two miles per hour in the early morning, high wind through the forenoon, and from 5 p. m. until midnight it stormed at the rate of from sixty to seventy-two miles per hour. Up to 9 a. m. the weather was very cloudy and generally dismal. From that hour until 6 p. m. fair weather prevailed, enlivened by a rain-storm and vivid flashes of lightning from 1.30 to 3.30 p. m. As the day closed heavy saturating clouds covered the summit, and continued so for the balance of the day. The upper clouds changed their formation every minute, and moved in various directions, massing and separating repeatedly. Telegraph communication was considerably disturbed by the atmospheric electricity. Mr. Aiken succeeded to-day in running a train to the summit, and three more carpenters were brought up to assist in completing the new hotel.

May 25.—There was a steady rise in the barometer all day; at midnight the instrument read 30.25. Mean barometer, 30.136. The temperature was comparatively steady from 35° to 37° up to midday; steady through the afternoon at 40° and 41°, and decreased to 37° at last observation. Mean thermometer, 37°.2. The humidity was very uneven; especially so at night. Immediately after the 8 a. m. observation was recorded the wind changed to north, and blew very steadily from that quarter until late in the afternoon, when the direction became uncertain, and gradually backed round by northwest to west. The velocity rapidly subsided to a light and fresh breeze from and after the midday observation. From 8 a. m. the sky cleared rapidly and the clouds covering the summits passed away from sight in a series of wonderful dissolving views. The principal clouds (cumulus) tumbled about the ravines in the early part of the day; toward midday they gradually ascended above the summits, leaving a light haze behind to fill the lower country. Upper clouds moved with the prevailing wind. After sunset the stars came out in great splendor, and clear weather prevailed. A few stratus clouds streaked the horizon at night; hazy below.

May 26.—The barometer rose steadily until nearly mid-day, and then fell to the position it held at the commencement of the day. Mean barometer, 30.290. The temperature increased to 47° in the afternoon, and oscillated a good deal during the day. Mean thermometer, 43°.7. The wind veered to north at 3.30 a. m., and died away to a calm at 6.15 a. m. Shortly before 10 a. m., a baffling light wind sprang up from a southern point, oscillating between south and southwest; a steady breeze from the west after 1 p. m.; gentle and fresh velocity in the morning and afternoon; brisk in the latter part of the day. Very fair weather has prevailed throughout the day. A light haze has covered the country below the summits, and the upper clouds (principally cirro-cumulus and light stratus) have moved with the prevailing wind. As night set in the clouds gradually covered the sky in the form of light stratus, and the rapidly-increasing humidity leads us to expect a change in the weather. Within the last few days the snow has melted with astonishing rapidity. Only a few broad patches of soft snow are to be seen, and miniature torrents are rushing down the mountain-sides. For several days past the Ammonoosuc has been unusually high.

May 27.—The barometer fell slowly all day to 30.08 at last observation. Mean barometer, 30.154. The temperature was very steady at 45° until after 9 a. m., increased to 50° at 1 p. m., and then fluctuated between 47° and 49°. Mean thermometer, 47°.0. Wind from the west, with a slight inclination to southwest, through the afternoon. The velocity varied considerably, oscillating betwen fresh wind and a moderate gale. Warm saturating clouds covered the summit, culminating in light rain at 2.35 a. m.; ended at 4.32 a. m.; clearing weather set in immediately after the rain ceased falling. The weather for the rest of the day was fair. The upper clouds were very commonplace, presenting little variety. They moved with the prevailing wind. At night the sky was about two-fourths covered with light stratus clouds, drifting with the wind quite close to the sun mit. The stars shone clearly through the breaks in the clouds. A train arrived to-day, bringing four more carpenters and a supply of provisions.

May 28.—The barometer showed an increase of pressure during the forenoon, and then steadily sank to 29.95 at last observation. Mean barometer, 29.982. The temperature gradually descended to 41° at midnight. Mean thermometer, 46°.0. There was a steady west wind all day. Storm and heavy gale velocity in the early morning dropped to a high wind through the greater portion of the day, and increased to a

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stiff gale at midnight. The weather has been very uninteresting. Summit covered with heavy clouds, which broke at times sufficiently to tantalize us with the fine prospect in the distance. Painters are at work in the new hotel. The party sent to fill the new stations here arrived in Littleton this p. m. I telegraphed Private Bowie to bring everything with him, and to make all haste in getting to the base.

May 29.—The barometer steadily rose to 30.15 at 5 p. m., and from that time gradually dropped to 30.03 at last observation. Mean barometer, 30.099. The temperature was comparatively steady between 39° and 42°. Mean thermometer, 41°.2. West wind through the day, northwest after 8:30 p. m. Velocity gradually diminished from gale, in the earliest hours, to tolerably steady brisk and high wind. Light rain set in at 12.22 a. m., and continued until 5.26 a. m. Rain-fall .26 of an inch. Cloudy weather through the forenoon. Turned fair at midday. Upper clouds (½ to ¾ cumulus) moved from the west. Clear below. I met the assistants sent to fill the new stations at the base this evening. Some portion of the baggage will arrive to-morrow. Everything has been done by the railroad officials to expedite the placing of the stations in a habitable condition. All unite in the endeavor to make the new-comers as comfortable as circumstances permit.

May 30.—The barometer fell steadily to 29.92 at 5 a. m., rose to 30.14 at 11.22 p. m. and fell to 30.09 at midnight. Mean barometer, 30.050. After 3 a. m. the temperature rapidly decreased until 8 a. m., and then the mercury was comparatively steady, oscillating between 26° and 28°. From 6 p. m. the thermometer showed a very even temperature of 24°. Mean thermometer, 25°.7. Wind from the west and northwest; steady from the northwest during the daylight hours. The velocity rapidly increased to a storm of sixty-six miles per hour at 6 a. m., fell to brisk and high through the day, and increased to sixty miles per hour at last observation. Threatening weather opened the day. Heavy rain fell from 2.10 a. m. to 5.12 a. m. Cleared rapidly, and fair weather prevailed. Clear at night. The principal clouds were light stratus and well-defined cumulus, alternately rising high above the summits and filling the ravines. When above the summits, the clouds moved from the west and northwest. I filled the day in superintending the fitting up of the new stations, and making the necessary telegraph connections. When the instruments were put in circuit the line worked well at all points. Littleton operator provided extra battery, and everything is going on in a satisfactory manner. The observers and assistants worked with a will to have all prepared for beginning operations on the 1st of June.

May 31.—The barometer was comparatively steady after 2 p. m., from 30.30 to 30.33. Mean barometer, 30.287. The temperature decreased 6° between 1 and 2 a. m. From 6 a. m. the mercury rose rapidly to 33° in the afternoon; nearly steady at 31° after sunset. Mean thermometer, 28°.2. Northwest wind changed to west, and steady between 2 and 3 p. m. Storm velocity gradually diminished to a steady, brisk wind. Clear weather all day; slight haze below. For two or three hours after sunset the lower portion of the mountain was enveloped in a dense smoke, which proceeded from fires accidentally started by wood-cutters. A considerable portion of the day was passed in conveying the new barometers to the base and summit, for comparison with the instruments at those stations. As there was no evidence that the articles purchased at Littleton (for the use of the new stations) had been forwarded from Bethlehem railroad-depot, I procured a team and proceeded to that point for the purpose of transporting them to the base without further loss of time.

INSTRUMENTS, PROPERTY, ETC.

No change in the instruments since last report. The carpet is rapidly wearing out.

ALFRED R. THORNETT,
Observer-Sergeant Signal-Service, United States Army.

F.

Daily journal for the month ending June 30, 1873.

SUMMIT OF MOUNT WASHINGTON, NEW HAMPSHIRE,
July 1, 1873.

June 1, 1873.—The barometer oscillated considerably all day between 30.10 and 30.30. Mean barometer, 30.172. After 4 a. m. the temperature steadily increased to 42° in the afternoon, and from 5 p. m. gradually decreased to 37° at last observation. Mean thermometer, 37°.5. The wind continued to come steadily from the west. By 7 a. m. the velocity increased to a stiff gale, and continued so, without much change, until nearly sunset, when it rapidly diminished to high and brisk winds. Fair weather prevailed.

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Light rain fell from 8 to 10 p. m. Cloudy weather at midnight. At (and for thirty minutes after) the 2 a. m. observation, a pale yellow auroral arch was observed close to the horizon, stretching between the points of north and east. A small quantity of cirro-stratus clouds moved with the prevailing wind; well-defined cirrus and cumulus in the afternoon. I visited the new stations to-day, and found everything going on well. They were provided with stoves, &c., this morning.

June 2.—The barometer was steady to-day, with an inclination to rise at night. Mean barometer, 30.190. The temperature decreased to 28° in the early morning, increased to 36° in the afternoon, and dropped to 28° at last observation. Mean thermometer, 31°.5. Shortly before 1 a. m. the wind changed to north, and back to northwest at 7 a. m.; then remained steady until between 8 and 9 p. m., when it settled to north. Brisk and high velocity, sometimes rising to a moderate gale. The weather continues to be very fine. Upper clouds, similar to those observed yesterday. Auroral streamers covered the sky between the points of north and east, from 12.30 a. m. until daylight. Fires are still burning in the woods below, and the lower country is filled with smoke.

June 3.—The barometer rose slightly through the day, (up to 5 p. m.,) and then fell to 30.20 at 8 a. m.; steady at night. Mean barometer, 30.237. The temperature gradually increased to 41° at 2 p. m., and from that hour decreased to 37°, at last observation. Mean thermometer, 36°.2. North wind in the morning, with "calm" at intervals. Early in the forenoon the direction changed to nothwest, and after 11 a. m. settled to west. Fresh velocity prevailed. Very frequently the sky was covered with light stratus clouds, stretching in horizontal lines, and connected by a dense haze, which pervaded the surrounding country and summits. Our observations were, to a great extent, limited by the smoke ascending from fires in the valleys. Auroral streamers were observed in the northeast from 12.20 a. m. to 3 a. m., but were very indistinct in consequence of the prevalence of dense haze. A bright halo encircled the sun during the afternoon.

June 4.—There was a decided fall in the barometer throughout the day, especially after the early morning hours. At midnight the instrument read 29.77. Mean barometer, 29.885. After 9 a. m. the temperature sensibly increased until 7 p. m., when the thermometer read 48°, and remained steady there for several hours. After 10 p. m. the mercury slowly fell to 46°. Mean thermometer, 43°.7. The relative humidity ranged between 70 and 100 per cent. The direction of the wind oscillated chiefly between west and northwest, with sometimes an uneven movement to southwest. The velocity steadily increased to high wind and gale, sometimes rising to nearly fifty miles per hour, but brisk and high winds prevailed. From 2.25 a. m. and up to midnight we experienced showery weather, the rain falling, in the early part of the forenoon, quite heavily. The summit was never free from heavy saturating clouds at any time during the day. A good deal of interruption took place in the telegraphing of signals to-day. This was caused by the defective insulation between the base and Littleton, and which occasioned considerable trouble last year. I visited the stations, and found that the duties were being creditably performed, and that there was no fault in the cable. Our battery at the base is in good order, but not strong enough to work the several instruments without the assistance of the Littleton battery.

June 5.—An irregular fall in the barometer continued until it reached a maximum of 29.72 at 5 p. m. After that hour the mercury rose to 29.88 at midnight, but oscillated materially all through the day. Mean barometer, 29,819. The temperature decreased in the early morning to 39°, and then stood steady for two or three hours; gradually increased to 45° at 3 p. m., oscillating very frequently, but only to the extent of 1° or 2°. From 3 p. m. a gradual and even decrease to 37° at the last observation. Mean thermometer 40°.2. The humidity fluctuated between 80 and 100 per cent. Excepting an occasional puff from the west, the direction was steady from the northwest. High and gale velocity in the early part of the day; dropped to fresh wind through the afternoon, and rose at night to "high." Rain ended at 2.35 a. m., but until 7 a. m. the summit was covered with clouds almost fully saturated. A short interval of clearing weather showed the ravines filled with heavy cumulus and stratus clouds, which soon rose and covered this station again. At 3 p. m. rain began falling, and on descending the mountain I met a storm of hail, which extended from a little above "Jacob's Ladder" to about three-fourths of a mile below. The stones averaged a quarter of an inch in diameter. Thunder accompanied the storm, the peals following each other in rapid succession. This lasted about 45 minutes. Fair weather from 7 to 9 p. m.; cloudy at night. I visited stations Nos. 2 and 3 to see that the instruments were cut out during the progress of the storm, as I was fearful that the electricity would cause some trouble.

June 6.—The barometer rose very steadily to 30.00 at last observation. Mean barometer, 29.976. A gradual increase of temperature to 43° at 1 p. m., where it remained very steady until 6 p. m., when the mercury (gradually) began dropping; 38° at midnight. Mean thermometer, 40°.7. Humidity steady between 90 and 100 per cent. Up to midday, the wind continued to blow very steadily from the northwest; after that time, until night set in, the prevalent wind was west, then northwest. Brisk and

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fresh velocity prevailed, seldom rising much above twenty miles per hour. showers fell in the early morning and early in the afternoon. Altogether, been very cloudy and uninteresting. A very feeble attempt to clear up, place early in the afternoon, failed. Fair at night, with heavy cumulus c and below.

June 7.—The barometer was comparatively steady to-day, with a tend toward night. Mean barometer, 30.057. The temperature has been remark at 35° and 36° all day. Mean thermometer, 35°.7. The relative humidit stationary as on yesterday. Fresh wind from the northwest prevailed nu calm at 8 a. m. After 3 p. m. the direction changed to north, and (gra steady blow from the northeast, the velocity rising to a stiff gale of forty per hour at last observation. Fair weather continued until between 2 a when the summit became enveloped in dense clouds, containing a large pe moisture. Light showers of sleet and rain fell during the forenoon, and steady fall of light rain at midday; ended at 5.45 p. m. Cloudy weather clo

June 8.—A decided and tolerably even rise took place in the barometer instrument reading 30.32 at the last observation. Mean barometer, 30.295 ing temperature in the morning—steady at 33° from 4 to 9 a. m.—increase the afternoon, and from 4 p. m. gradually decreased to 36° at midnight. mometer, 37°.2. Humidity decreased to 72 per cent. during the afternoon, The wind came very steadily from the northeast until 3 p. m., when it vee and did not change until it returned to northeast at 10.15 p. m. Storm ve a maximum of sixty miles per hour, opened the day, fell to light wind af and increased to brisk at night. Heavy stratus clouds rushed over the su early part of the day. At 9 a. m. the surrounding country rapidly cleare short time there was nothing but a slight haze between us and all below clouds, partially covering the sky, gradually diminished in quantity, and f and excepting a few streaks on the horizon, the heavens were entirely free

June 9.—The barometer fell all day to 30.18 at last observation. Mean 30.251. The temperature continued on the decrease to a minimum of 34° i morning, increased after 4 a. m. to 48° at 1 p. m., where the mercury he through the afternoon. From 5 p. m. a steady decrease brought the mercu 40° at midnight. Mean thermometer, 42°.7. After the early part of the da tive humidity decreased considerably, and ranged between 50 and 70 per c wind from the northeast fell off to "gentle," and from midday a calm se was but little disturbed up to 9 p. m., when a fresh breeze sprang up in the ually moving round by northeast to north at midnight. Until after midn was entirely clear, and then a few cumuli appeared, moving with the prev that was just dying out. Cumulus clouds prevailed in the latter part of th when moving at all, appeared to come from the north or northeast. It wa determine exactly which course the clouds did take; the movement was s weather at night. The view of the mountains and departing sun from thi remarkably fine and exceptional.

June 10.—Comparatively steady barometer until early afternoon, after th rapid fall to 30.09 at last observation. Mean barometer, 30.152. The t gradually increased and attained a maximum of 54° at 1 p. m.; steady From 5 p. m. the mercury gradually fell to 46° at midnight. Mean thermon To-day the humidity averaged 57.7 per cent., a minimum of 42 per cent. i noon, and a maximum of 69 at night. The wind has been very changeal never holding long from one particular point. West and northwest wind p the morning and latter part of the day, but swept round to southwest lat Light and fresh velocity, dropping to calm at times, rose to a high wind a When not stationary the upper clouds moved with the prevailing wind, ar unusually well-defined and in great variety. So light and airy they appe that it was a real pleasure to observe them as they mingled and separated to re-form in greater beauty. Smoke in the valleys.

June 11.—The barometer fell slightly early in the day, but after 9 a. m rose to 30.08 at last observation. Mean barometer, 30.040. The temperat increased to 48° at 4 a. m., where it remained stationary until midday, the gradually to 39° at midnight. Mean thermometer, 44°.2. The hygrometer great increase of moisture in the atmosphere. Changeable southwest win m., when it gradually veered round to a steady wind from the northwest. T increased to a heavy gale, (late in the afternoon,) which reached a maxim miles per hour at 5 p. m., and then diminished to a brisk wind at night. a. m. rain fell without interruption, and sometimes very heavily. Dense ered the summit for the rest of the day.

June 12.—Steady barometer in the morning. After 6 a. m. the mercury and uninterruptedly to 30.31 at midnight. Mean barometer, 30.199. The t decreased to 33° at 4 a. m., and then oscillated between 32° and 36°. Mea eter, 33°.5. Humidity averaged 80 per cent. Steady northwest wind

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north between 7 and 8 p. m. Fresh and brisk velocity prevailed. It fell to a gentle wind for an hour or two in the morning, and rose to a moderate gale at night. Light rain for half an hour about 2 a. m. From 6 a. m., and up to midday, the ravines were partially filled with heavy cumulus clouds, which moved in winding masses as the formation of the mountain-sides dictated. From midday, and up to 6 p. m., the summit was capped, giving no opportunity for extensive observation. From 9 p. m. no clouds were to be seen; the rapidity with which they disappeared was truly astonishing.

June 13.—The barometer rose very rapidly, and reached a maximum of 30.35 at 11 a. m. After that hour the mercury fell steadily to 30.26 at midnight. Mean barometer, 30.300. The temperature steadily increased to 45° at 2 p. m. Steady at 44° for three hours after, and then decreased to 38° at night. Mean thermometer, 40°.0. Great decrease in the humidity to-day; minimum during the afternoon of 60 per cent. Variable northeast light wind, with numerous calms, until it settled to a fresh wind from the west and northwest at night. The morning opened with a clear sky. Light stratus and cirrus passed over between 4 and 9 a. m., followed by about two-fourths cumulus. After 5.30 p. m. the sky was free from cloud, with the exception of a very slight fringe of stratus on the southeastern horizon. Fine, star-light night. From 9 to 10 p. m. an auroral arch appeared in the north; faint yellow color.

June 14.—After 7 a. m. the barometer gradually fell to 30.13 at last report. Mean barometer, 30.212. Temperature very steady at 36° until 7 a. m., when it gradually increased and fluctuated for the greater part of the day between 43° and 44°; decreased to 38° at 9 p. m., and then the mercury rose to 41° at last observation. Mean thermometer, 39°.0. The humidity decreased very rapidly as the day wore on, and at 10 p. m. reached a minimum of 17 per cent.; the smallest percentage that I have ever observed on this station. Light wind from the west and northwest, but calms prevailed through the daylight hours. After sunset there was a light and fresh wind from due southeast. The day has been uniformly fair, and cumulus clouds formed in great variety. In the latter part of the evening the upper clouds moved steadily from the west.

June 15.—The barometer fell steadily to 30.04 at midnight. Mean barometer, 30.083. After 6 a. m. the temperature steadily increased to 52° at midday, and remained steady until 2.30 p. m., then decreased to 46° at 7 p. m., and did not change through the rest of the day. Mean thermometer, 46°.0. The humidity increased toward the close of the day from 90 to 100 per cent. Light southerly wind fell to a calm between 1 and 2 a. m., which latter continued for several hours. Uncertain, gentle wind from the northwest through the forenoon, became steady after midday, and freshened to high and moderate gale velocity at night. Fair weather prevailed during the daylight hours, but as evening set in large masses of dense stratus covered and drifted over the summit. The weather at night was very cloudy and threatening.

June 16.—The barometer rose after early morning to a maximum of 30.13 at 11 a. m. and then steadily fell to 29.91 at the last observation. Mean barometer, 30.041. There was a steady increase of temperature up to 1 p. m., when the mercury stood at 56°, and decreased through the rest of the day to 40° at midnight. Mean thermometer, 48°.7. Steady northwest wind all day. The velocity gradually diminished from a brisk wind to a calm at noon. After 1 p. m. there sprang up a brisk wind, which increased to high and gale as night approached. Clearing weather set in shortly after 7 a. m., and very fair weather prevailed until 6 p. m., when heavy clouds came down from the northwest and soon enveloped the mountain. At the same time the humidity sensibly increased, and there was every indication of an approaching storm. The wind was very warm, and had settled to a steady blow averaging thirty-two miles an hour. Sheet and forked lightning flashed over and below the summit from 10.11 p. m. until after midnight, with the usual accompaniment of heavy thunder, which continued rolling, almost without intermission, during the progress of the storm. At 10.30 p. m. heavy rain set in, and did not cease until long after midnight. The upper clouds were nearly all large cumuli moving from the northwest. I visited stations Nos. 2 and 3 this a. m.; found all well and the work progressing favorably. Mr. Gates (district superintendent to the Western Union Telegraph Company) arrived at the base to-night with a party of men to put up the mountain wire.

June 17.—Steady barometer in the morning. After 5 a. m. the mercury gradually rose to a maximum of 29.97 at 4 p. m. and fell slightly and unevenly after that hour. Mean barometer, 29.909. There was a decrease in the temperature of 10° from 1 a. m. to midnight. Mean thermometer, 36°. The wind continues to come very steadily from the northwest, and with heavy gale velocity, which now and then drops to high wind. Rain ended at 12.45 a. m. The weather was cloudy until after 7 a. m., when the clouds broke and fair weather set in for the rest of the day. During the forenoon large quantities of cumulus cloud filled the ravines to the west of the mountain, sometimes entirely covering the summits in that direction, excepting that of La Fayette. These clouds passed away as the day wore on, leaving the upper sky perfectly clear. Between 6 and 7 p. m. we gradually became enveloped in dense stratus clouds, which hung over us for two or three hours, and then gradually dwindled to a few faint

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streaks at midnight. From 10 p. m. until midnight a diffused light app
northern horizon; it was not very distinct in coloring.

June 18.—The barometer rose to a maximum of 30.06 at midday, stood s
hour, and then fell rapidly to 29.91 at midnight. Mean barometer, 29.99
perature decreased rapidly to 26° at 4 a. m., and remained steady at th
two hours. From 6 to 7 a. m. the temperature ran up 6°, (to 32°,) and grad
in the early part of the afternoon, remaining very steady afterward. Mea
eter, 41°.0. There has been no change in the direction of the wind to-da
locity decreased to a fresh wind at 2 p. m., and then steadily increased
fifty miles per hour at midnight. From 5 a. m. the sky was partially co
haze of well-defined cirrus clouds, which at 4.50 p. m. gave place to a
stratus clouds. These last gradually descended and covered the summit. A
m. the stars were visible through a few breaks in the clouds, and fair weath
day. During the latter part of the afternoon a very peculiar cloud was
the southeast of and a little above the mountain. It was of a light-brown
deeper than any other in sight at the time,) and in the shape of a depressed
or rather fruit-dish, the formation being very accurate. This cloud appeared
stationary, while the others (cirrus) were moving rapidly before the north

June 19.—The barometer fell to a minimum of 29 87 at 6 a. m., then ros
30 03 at 2 p. m., and fell to 29.88 at last observation. Mean barometer,
temperature increased from 42° in the early morning to 53° and 54° at n
thermometer, 50°.2. After midday the mercury was pretty steady from
Steady northwest wind continued until between 6 and 7 p. m., when it bac
and remained so for the rest of the day. Gale velocity gradually fell off
fresh wind through the middle of the day, and from 3 p. m. increased to
miles per hour at midnight. The day opened with rain, which began at 12.
continued until 4.15 a. m., coming down very heavily at times. Cloudy
vailed until it ended in a shower of light rain, which took place between
2 and 3 p. m. After the shower the clouds rapidly passed away from
showing cumulus clouds below, and about one-fourth cirrus above it. In
hours these cirri gave place to cumuli. Haze below; and as night wore
peared to be a blending of light stratus with the other clouds, and the
quently veiled by them. Cloudy weather at midnight.

June 20.—The barometer low, and comparatively steady all day. Mean
29.827. The temperature decreased to 45°, where it remained steady from
1 p. m., and then rapidly increased to 49° at 4 p. m. After 5 p. m. the m
down very rapidly to 34° at last observation. Mean thermometer, 43°.
7 a. m. the temperature fell 5°; the same rapid decrease took place betw
p. m. The wind changed to northwest at 1.30 a. m., and remained steady
rest of the day. The wind rose to a storm of sixty miles per hour at 2 a. m
between "gale" and "brisk" through the day, and rose to a storm at nig
rain from 3.15 to 3.45 a. m. Cleared rapidly and fair weather prevailed
when the summit was again covered with dense clouds. Two-fourths to th
cumulus cloud moved with the prevailing wind, frequently capping the su
flight. I visited all stations to-day and found everything correct.

June 21.—The barometer oscillated considerably through the day, and
at last observation. Mean barometer, 29.938. Temperature steady at 30
the morning, rose to 36° in the middle of the day, and decreased to very
mometer of 32° at night. Mean thermometer, 32°.5. Steady northwest
3.20 p. m., when it changed to north and blew steadily from that point fo
the day. The wind increased in force to sixty-eight miles per hour at
then rapidly diminished to fresh and brisk. About one-fourth stratus clo
above the summit in the beginning of the day, which rapidly increased in
capped the mountain. Between 3 and 4 a. m. the clouds massed in the sout
ing a clear starlit sky and brilliant moon. This lasted but a few minutes,
mit was again covered with dense clouds. From 12.30 to 3.25 p. m. we
light showers of rain, snow, and heavy sleet. Cloudy weather continued
of the day. The wire has been working very hard for the past two day
out entirely this afternoon.

June 22.—The barometer rose steadily all day to 30.27 at last observa
barometer, 30.184. The temperature was very steady in the early morning
from 4 a. m. fluctuated between 34° and 36°. Mean thermometer, 3
changed to northwest late last night, and back to north at 3.30 a. m. Ve
direction through the day, west and nothwest being the prevalent winds
m., when it died away to calm. Fresh wind from the northeast at nigh
midnight. Fresh and gentle velocity prevailed. The clouds lifted for a
in the early morning, but up to 7.30 p. m. cloudy weather prevailed. Af
sky cleared rapidly, and Portland, Me., could be easily seen with the nak
the telescope brought the houses out very distinctly.

I made a visit to stations Nos. 2 and 3 to-day, and found the observers at
and the business going on steadily.

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An auroral arch appeared in the north from 10 p. m. until midnight, which extended from northeast to north, and rested upon a dark segment. I found a break in the "ground" and cable; made the necessary repairs.

June 23.—The barometer rose to 30.38 at 11 a. m., and then gradually fell to 30.36 at last observation. Mean barometer, 30.347. The temperature steadily increased to 47° at midday, fluctuated two or three degrees below that point during the afternoon, and settled to 44° at night. Mean thermometer, 43°.5. This has been a very calm day, only a few uncertain puffs from the east and southwest occurring to break the monotony of a dead calm. Fair weather all day. Upper clouds (cumuli) moved from the southwest in the latter part of the afternoon. A very small quantity of stratus appeared at irregular intervals through the day and night. Auroral streamers covered the sky to the north and east from 9.30 p. m. until 2.15 a. m. next morning, gradually diminishing in intensity as they passed from view.

June 24.—The barometer fell slightly in the early morning, and then steadily rose to 30.47 at night. Mean barometer, 30.409. The temperature decreased to 41° at 4 a. m., increased to 51° in the early afternoon, and decreased to 45° at night. Mean thermometer, 46°.7. Prevailing wind from points either side of east, and very frequent calms of long duration. The velocity through the day was gentle; fresh at night. Fair weather all day. The upper clouds moved from the west and northwest nearly all day. After 7 p. m. the night was clear, and between 9 and 10 p. m. a beautiful aurora appeared in the north and extended a considerable distance along the horizon. It was in the form of a lambent flame, which incessantly shot up streamers reaching to the zenith, instantly returning to the main aurora. This continued until after 3 a. m. next morning. I visited the stations to-day, from base to summit.

June 25.—The barometer continued rising to 30.58 at midday, and then gradually fell to 30.54 at last observation. Mean barometer, 30.554. The temperature increased rapidly through the forenoon. The thermometer was steady at 55° and 56° during the afternoon, and dropped to 48° at night. Mean thermometer, 51°.2. Steady northeast wind through the early part of the day; turned to southwest at 3.50 p. m., and immediately after to dead calm. Steady northwester at night. Gentle velocity prevailed nearly all day; brisk at night. Clear and fair weather prevailed all day. Principal upper clouds for the past two days, cumuli. Only a few stratus clouds appeared at long intervals. A bright lambent flame, smaller, but similar to that of last night, appeared in the north from 9.10 p. m. to 3.15 a. m.

June 26.—Up to midday the barometer was steady, and then fell rapidly to 30.36 at last observation. Mean barometer, 30.456. The temperature increased to 59° in the afternoon, and decreased to 49° at midnight. Mean thermometer, 53°.0. Wind steady from the northwest—due west for an hour or two before sundown. Fresh and gentle velocity increased to a high wind at night. Fair weather prevailed all day; clear at night. Principal clouds, cirrus, moving from the west and northwest. Well-defined cirro-stratus (about one-sixteenth) were observed in the morning, and did not altogether lose that character throughout the day. A great quantity of pure and almost transparent cirrus covered the sky. A soft haze covered the mountains and lower country. After 9 p. m., spasmodic auroral displays ("merry dancers") took place near the northern horizon, and appeared at irregular intervals into the early part of the next morning. Visitors remark upon the scarcity of water in this section of the country. Trains cannot run from the summit, as the springs fail to afford sufficient water to supply the engines.

June 27.—The barometer fell rapidly all day to 30.08 at midnight. Mean barometer, 30.197. The temperature rapidly increased to 59° in the middle of the day, and gradually decreased to 51° at last observation. Mean thermometer, 53°.2. The relative humidity fell to 16 per cent. from 9 to 10 a. m., and increased to 86 at night. Northwest wind changed to west at 5.30 p. m., and continued so for the rest of the day. Calm from 9 to 10 a. m. High wind fell off to fresh and gentle, and increased at night to a moderate gale. Clear and fair weather prevailed. Cirro-stratus clouds predominated and remained stationary through the greater part of the day. As the wind from the west increased in force, the clouds were driven rapidly before it. Toward sundown only a few cumuli dotted the sky. Slight streaks of stratus (well defined) appeared late at night and gradually increased in volume. Haze and smoke covered the lower country.

June 28.—The barometer fell to 30.02 at 10 a. m., and then rose to 30.10 at last observation. The mercury rose and fell very unevenly. Mean barometer, 30.073. The temperature fluctuated between 51° and 53° until late in the afternoon, and, from 4 p. m., gradually decreased to 47° at night. Mean thermometer, 50°.7. The wind veered to northwest between 1 and 2 a. m., and prevailed from that point nearly all day. It moved around to west for an hour or two in the late forenoon, and to north at sundown. After 8.15 p. m. the wind suddenly died away and a calm ensued. High and brisk velocity prevailed; fresh in the forenoon. The day opened with cloudy weather; the summit covered with dense saturating clouds. The humidity rapidly increased to 100 per cent., and light rain fell from 5.30 to 11.45 a. m. Cloudy weather prevailed

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(with intervals of clearing) until after 9 p. m., when the sky rapidly cleared, a slight streaks of stratus cloud remained near the southeastern horizon. of heat lightning were observed in the south a little before midnight, an rora appeared in the northeast from midnight until 2.20 a. m. The tel structors are making extensive alterations in the wires, and interrupt op siderably.

June 29.—After 1 a. m. the barometer fell to 30.06 at 4 a. m., then steadily at 11 a. m., and remained steady until 8 p. m. From that hour there w rise to 30.18 at last observation. Mean barometer, 30.153. The temperatu to 58° at midday, and remained very steady until late in the afternoon, a to 54° at 8 p. m. From that time the mercury was very steady; mean t 54°.2; calm until 5.10 a. m., when a variable light wind arose in the west. at 8.20 a. m. Very light puffs from the west and northwest until late in th when the velocity increased to "brisk," and changed direction to the so to southwest after 9 p. m. Fair weather prevailed. Shortly before sun clouds massed on the summit, and for a couple of hours there was every approaching rain. This passed off, and the night set in fair. Heavy cu covered the greater portion of the sky after the early part of the forenoon smoke prevailed below. Telegraphic communication is very uncertain.

June 30.—The barometer fluctuated between 30.15 and 30.19; mean 30.183. The temperature was comparatively steady; from 51° to 55°; me eter, 53°.2. Wind oscillated between west and southwest through the e the day, and settled at the latter point after 10 a. m. The velocity stead to a heavy gale of fifty miles per hour at midnight. The day opened wi mosphere above the summit, and with the ravines filled with a large qua ulus cloud. After 6 a. m. heavy saturating clouds covered the summit, cu light rain at 1 p. m. It held up between 5.30 and 9.20 p. m., then recom continued after the last observation was recorded, coming down very hea

INSTRUMENTS, PROPERTY, ETC.

No material change has taken place in the condition of the instruments at this station since last report, except the carpet, which is rapidly weari

ALFRED R. THOR

Observer Sergeant, Signal-Service, United S

G.

Daily journal.

BASE OF MOUNT WASHINGTON, NEW HAMPSHIRE.

May 1, 1873.—This station bears due west of the summit. Regular commenced at 1 a. m. A few "stratus" clouds were observed at 1 a. m disappeared, leaving a perfectly clear sky. A light easterly wind preva out the night, the barometer remaining stationary until about 6 a. m., w to rise slowly. The temperature declined six degrees between 1 and 5 a. m a minimum of 30° at 5 a. m., and remaining at th t! ight until 6 a. m., w to ascend. Wind veered to southwest at about 6.30 a. m. Fresh to br winds during the day, with partly fair and cloudy weather. Maximum 53°. At 7 p. m. the wind changed to the south, and at 8 p. m. to the so continued "light" from that quarter during the night. The 10 a. m. sig vations was not acknowledged by observer on summit.

May 2.—A gentle southeast wind prevailed at 1 a. m., chang shortly after, and remaining in that direction until 7 a. m., w ensued. Barometer steady during the night. The temperature remain tween 1 a. m. and 5.30 a. m., reading 37° at 6 a. m. and 44° at 8 a. m. A clouds were observed in the southwestern horizon between 1 and 2 a. m., to "cirri" moving slowly from west. No signals could be heard from sun 1 and 4 a. m. A light westerly wind set in at 8 a. m., occasionally shifting and eastward during the day. The sky clouded over with cirro-stratus, s stratus during the forenoon, and light snow commenced at 2.45 p. m., t falling steadily but slowly. The thermometer reached its maximum heig when it read 30° and fell steadily thereafter. Snow turned to rain at 7 p latter to sleet at 9.50 p. m., ending at 11 p. m. Total amount of melted sn

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rain, 0.49 inch. A very light wind prevailed during the night, shifting between southeast and southwest. No signals heard from summit at 8 p. m.

May 3.—Barometer continues to fall slowly and steadily. The thermometer reached its minimum at 6 a. m., reading 31°.5. Light southeast and southwest winds, with occasional calms, until morning. Dark, threatening stratus clouds were observed in the early morning, and light snow fell between 3.45 a. m. and 4.30 a. m.; the clouds still appearing very heavy and sinking lower down the mountains. Light snow recommenced at 7.40 a. m., a steady but very light westerly wind prevailing. The barometer continues to fall until noon, and rises steadily thereafter. Snow ended at 5.40 p. m., the weather soon after giving signs of clearing up. Light westerly winds prevailed until 7 p. m., when a fresh southeast wind set in which had backed to northeast by 9 p. m., but changed to the west again toward midnight, the weather clearing up finely with change of wind. No signals could be heard from the summit after 8 p m.

May 4.—Barometer continued to rise after midnight. The thermometer reached its minimum at 5 a. m , when it read 23°. A gentle westerly wind prevailed until 3.45 a. m., when the vane swung to the southeast, and to the north at 8 a. m. A few cirri were observed at 1 a. m., which soon disappeared to the southeast, leaving a clear sky. Clear weather continued until 2 p. m., when the sky became partly overcast with cumulus clouds moving from the northwest. A fresh northwest wind prevailed throughout the afternoon, which apparently blew with great force on the summit, as dense clouds of snow were at times observed. Maximum temperature, 48° at 3 p. m. Signals acknowledged regularly after 3 p. m. Barometer continued rising until 7 p. m., when it began to fall slowly; the thermometer rising 2° between 9 p. m. and midnight. A gentle north wind prevailed throughout the night, with fair weather until midnight, when the sky became entirely covered with stratus clouds.

May 5.—The barometer continued to fall slowly until 3 a. m., and remained stationary until 6 a. m., when it began to rise slowly. The fluctuation of the thermometer from 1 to 6 a. m. was very small, not exceeding 2°. At the last-named hour the mercury began to fall, reading 33°.5 at 8 a. m., which is the lowest observed during the morning. Light to fresh northwesterly winds prevailed during the night, followed by a dead calm at 7 a. m., which continued until 9 a. m., when a gentle northwest wind set in. Stratus clouds completely covered the sky during the night, which were observed to move from the northwest at 4 a. m., and at 5 a. m. were moving rapidly from the west, assuming a threatening appearance. Light snow commenced at 6.15 a. m., soon increasing to "heavy snow," and ending at 8.45 a. m., at which time a dense fog set in. Weather remained foggy and misting until 10.45 a. m., when snow began to fall again; the latter at times becoming rain or sleet. At 12 m. the weather showed signs of clearing up, which were verified during the afternoon, the stratus clouds breaking up and assuming the shape of cumuli, moving rapidly from the northwest. A fresh northwest wind prevailed throughout the afternoon, and the barometer continued to rise steadily. All signals were promptly acknowledged by the summit, the line working very well to-day. Clear weather, rising barometer, and light northerly wind at night. Signals not acknowledged by summit at 11.22 p. m.

May 6.—Clear weather and steadily rising barometer between midnight and 9 a. m. The thermometer fell at the rate of 1° per hour until 5 a. m., when it reached a minimum of 23°. Gentle northerly winds prevailed, veering more easterly at 8 a. m. Continued clear weather and fresh west to northwest wind during the afternoon. At 8 p. m. the wind changed to southeast, and remained in that direction up to 12 m. Maximum temperature of day, 45°. Clear weather and rising barometer throughout.

May 7.—Barometer still rising. Clear sky until 5 a. m., when a few cirri were observed on the western horizon. A gentle southeast wind prevailed until 4 a. m., when it changed to the east and to the northwest at 7.30 a. m. Minimum temperature 28° at 4 a. m. Very pleasant weather during the afternoon, with light and variable wind. A few cirri observed on western horizon, moving from the northwest; elsewhere the sky was clear. Maximum temperature 54° at 3 p. m. Barometer remained nearly stationary throughout the night. A gentle north wind prevailing, with generally clear sky.

May 8.—The barometer rose slowly and evenly during the night. The temperature advanced 2° between midnight and 3 a. m., and fell off until 6 a. m., reaching a minimum of 32°.5. A gentle north wind prevailed during the night, with clear sky, until 3 a. m., when the lower atmosphere grew hazy and cirrus clouds began to appear, moving rapidly from the west.

4 *p. m.*—The barometer continued rising until 9 a. m., and has been falling slowly since that hour. The thermometer exhibited a maximum of 58° at 3 p. m. Sky three-fourths covered with cirrus and cirro-stratus clouds moving from the northwest. A gentle westerly wind prevailed until 2 p. m., when a fresh and steady southeast wind set in. Lower atmosphere "hazy."

12 *p. m.*—Wind continued gentle from the southeast, with partly fair and clear weather during the past eight hours. The barometer was nearly stationary until 11.22 p. m., when it began to fall steadily. All signals promptly acknowledged from summit.

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May 9, 8 *a. m.*—The thermometer reached its minimum of 33° as early as began to rise shortly thereafter, going up to 41° by 5 a. m. The barometer and regularly. A gentle southeast wind prevailed until 4.30 a. m., when the northeast, veering back to southeast at 7 a. m. A few "cirri" could until after 3 a. m., when the sky clouded over with stratus, which soon en entire heavens.

4 *p. m.*—Cloudy weather and fresh southeast wind; the latter shifting at 11 a. m., but backing to southeast by 1 p. m. Maximum temperature 5 Barometer falling slowly.

12 *p. m.*—Light rain commenced at 6.10 p. m., the wind at the same time i brisk, blowing in gusts of considerable force, and varying between southe The barometer fell .068 inch between 4.57 p. m. and midnight. Rain ce p. m.; amount, 0.11 inch. Weather threatening, and wind blowing strong

May 10, 8 a. *m.*—The barometer has continued to fall during the past with continued strong gusts of wind from the east and southeast. Rain r at 1.30 a. m., and continued throughout, perfect sheets of it coming dow tains. Rain-fall, .29 inch.

4 *p. m.*—The minute observations taken between 8 and 9 a. m. disclo dinary fluctuations of the barometer, the mercury alternately rising and .010 to .018 inch in the space of one minute. These fluctuations appe direct proportion to the force of the strong gusts of wind which followed e rapid succession. Rain ceased at 10.05 a. m., and the wind moderated soo but the weather continued cloudy and threatening until 4 p. m., whe clouds began to break up, giving view to cirri and cirro-cumuli moving the southwest. The wind veered to the south at 2 p. m., and to the west hours of 3 and 4 p. m. Maximum thermometer, 58° at 1 p. m. The record was lost between 2.30 and 6 p. m., the insulating attachment order.

12 *p. m.*—Partly clear and cloudy weather during the past eight hours, barometer. Wind shifted to the southeast at 6.30 p. m., blowing gently from that point throughout.

May 11, 8 *a. m.*—The barometer has been falling slowly since midnigh little change of temperature until after 3 a. m., when the thermometer b Minimum temperature, 37°. A gentle southeast wind prevailed until when it shifted to the west, and died off soon after. A few "cirri" were the southern horizon between 1 and 4 a. m., which were followed by s over the mountains on the southeast, and covering the entire sky by 7 a.

4 *p. m.*—Variable light airs and calms until 10 a. m., when a fresh sou set in, which shifted to the northwest at 3.30 p. m. Weather became toward noon, and rain began to fall at 2.20 p. m. The barometer fell slo out, and the minute observations made between 2 and 3 p. m. showed fluctuations of the mercury, especially during the ten minutes precedin ning of rain. Maximum temperature 59° at 2 p. m.

12 *p. m.*—Rain continued throughout the night. Total rain-fall during hours 0.97 inch. The barometer fell .100 between 4.57 p. m. and midnig temperature has changed but little in the past eight hours. A light sou prevailed until about 8 p. m., when a calm ensued. Between 9 and 10 northerly wind sprang up, which continued up to midnight.

May 12, 8 *a. m.*—The barometer fell slowly until 6 a. m., when the press slightly. The thermometer fell 1° from midnight to 2 a. m., reading 39° hour, which is the minimum during the morning. Continuous rain thr gentle north wind prevailed until 6.15 a. m., at which time the wind d pletely.

4 *p. m.*—Rain ceased at 10.45 a. m., and the clouds began to break up Partly fair and cloudy weather during the afternoon. The barometer has with a slight tendency to rise. Maximum temperature 50° at 3 p. m fresh variable northerly winds have prevailed during the past eight ho clouds moved steadily from the northwest.

12 *p. m.*—Barometer has risen very slowly and the weather cleared Gentle northerly to westerly winds continued until 11 p. m., veering t that hour. Barometer falling at midnight.

May 13, 8 *a. m.*—Barometer has fallen steadily since midnight. Minimum 34° at 2 a. m. No clouds were visible until 6 a. m., when a dense bank of observed rising in the southern horizon, which increased rapidly and soon entire sky. Variable easterly winds throughout, veering more southerly to

4 *p. m.*—The barometer fell quite rapidly until 3.25 p. m., when simulta a change of wind from southeast to northwest, it began to rise. Light r 10.25 a. m., and continued at intervals. The wind, until 3.25 p. m., was fr east, but the lower clouds moved steadily from the southwest, and later fr Maximum temperature 52° at 1 p. m.

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12 *p. m.*—Partly fair and cloudy weather, with fresh northwest wind. Barometer rising slowly.

May 14, 8 *a. m.*—The barometer has risen slowly during the past eight hours, with cold and cloudy weather. Light snow between 4.50 and 7.15 a. m. Minimum temperature 30° between 3 and 6 a. m. A fresh northwest to southwest wind prevailed throughout.

4 *p. m.*—The barometer has been falling very slightly since 8 a. m. and the thermometer has changed but little. Maximum temperature, 34° at 12 m. The weather has continued cloudy, with light snow at short intervals. Sleet fell between 11.25 and 11.50 a. m. Fresh westerly wind prevails.

12 *p. m.*—Snow fell until 8.40 p. m. Cold and cloudy weather continued. Barometer still falling slowly. Fresh westerly winds throughout. Amount of melted snow .04 inch.

May 15, 8 *a. m.*—The barometer changed but little until after 4 a. m., when it began to rise slowly and more rapidly after 6 a. m. The thermometer fell from 28° at 1 a. m. to a minimum of 26° at 2 a. m., keeping at that height until after 6 a. m. when it began to rise slowly. Fresh and brisk northwest to north winds throughout with cloudy weather. A light mist commenced at 6.45 a. m., turning into light snow.

4 *p. m.*—Snow ended at 11.30 a. m., but the weather continued cloudy and threatening, with "gentle to fresh" northwest wind. Maximum temperature, 41° at 2 p. m. Barometer rising.

12 *p. m.*—The weather gave signs of clearing up after 9 p. m., and all clouds but a few cirri had disappeared at 11 p. m. Light westerly winds veered to the north at 9. p. m. The barometer continued to rise until 8 p. m., and remained nearly stationary after that hour.

May 16, 8 *a. m.*—The sky became overcast soon after midnight, and remained so throughout. The thermometer reached a minimum of 32° at midnight, and rose 2° by 2 a. m., remaining at 34° until 6 a. m. Light northerly winds throughout. The barometer has been very steady during the past eight hours.

4 *p. m.*—The barometer has continued very steady. Light rain commenced at 11.10 a. m., and continued until 12.40 p. m., the weather remaining cloudy. Gentle northwest to westerly winds throughout. Maximum temperature, 48° at 2 p. m.

12 *p. m.*—Continued cloudy weather and light north and northwest wind. The barometer has risen slightly.

May 17, 8 *a. m.*—Light rain between 2.50 and 4.10 a. m. Weather still cloudy, barometer steady. A light north wind prevailed until 2.15 a. m., followed by a calm which lasted until 4.10 a. m., when a gentle westerly wind sprung up. Maximum temperature 35°.5 at 6 a. m.

4 *p. m.*—The barometer has risen slowly during the past eight hours. Cloudy weather continues, with light squalls of rain and sleet. The wind veered to the northeast at 3 p. m. The maximum temperature, 45° at 1 p. m.

12 *p. m.*—Sleet and rain until 9.40 p. m., with light winds, the latter backing to northerly at 9 p. m., and to northeast at 11 p. m. Barometer rising until 9 p. m., when it fell slowly until 10 p. m. and remained stationary up to midnight. Total amount of melted snow and rain, 0.13 inch.

May 18, 8 *a. m.*—The barometer fell steadily until 4 a. m., and began to rise slowly after 5 a. m. The thermometer stood at 35° until after 4 a. m., when it fell slightly up to 7 a. m., reaching a minimum of 33°.5. Light rain commenced at 1.45 a. m., turning into heavy snow at 4.40 a. m., which ceased at 5.30 a. m., but recommenced at 6.15 a. m. Variable light winds and calms throughout.

4 *p. m.*—Frequent short squalls of sleet between 11 a. m. and 2 p. m., with light to fresh northwesterly winds throughout. Barometer rising slowly. Weather gives promise of clearing up. Maximum temperature, 45° at 3 p. m.

12 *p. m.*—The barometer has risen steadily during the past eight hours, and the weather cleared up finely. Fresh northwest winds until 8 p. m., when it veered to the north. The thermometer fell to 30° at 11 p. m., which is the minimum of the day; a few clouds appearing at midnight. Amount of melted snow and sleet, .36 inch.

May 19, 8 *a. m.*—The barometer fell uninterruptedly between midnight and 5 a. m., and is now rising slowly. The temperature has been steadily increasing since midnight, reading 31° at that hour, 33° at 3 a. m., 37° at 6 a. m., and 41° at 8 a. m. The sky became overcast soon after midnight with stratus clouds, which now appear to be breaking up. A light northerly wind prevailed, veering to the northwest at 7 a. m.

4 *p. m.*—The barometer has been rising steadily since 8 a. m.; maximum temperature, 49°, at 3 p. m. The weather has partly cleared up, the clouds having a greater elevation and being broken up into large cumulo-stratus and cumulus clouds. A fresh northwest wind prevailed, veering to the north between 3 and 4 p. m.

12 *p. m.*—The weather cleared up entirely by 8 p. m., and remained clear throughout the night. The wind veered to the northeast soon after 4 p. m., blowing gently and steadily from that quarter during the past eight hours. The barometer has risen

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steadily. The temperature declined until 10 p. m., and remained station
that hour and midnight.

May 20, 8 *a. m.*—The barometer remained nearly stationary until after
which time it has been rising steadily. The thermometer stood at 31° b
night and 3 a. m., fell to a minimum of 30° at 4 a. m., and began to rise be
6 a. m. The weather has continued clear with light winds, the latter hav
the east at 1 a. m., backed to the north at 4 a. m., and to the northwest at

4 *p. m.*—The barometer continued to rise until 10 a. m., remained sta
about 2 p. m., and has since been falling slowly. Maximum temperature, 5
was perfectly clear until after 12 m., when a few cumuli made their appea
southwestern horizon. Variable light airs until noon, when a steady gent
in from the northeast, which continued until after 3 p. m., shifting to a fr
wind at that time.

12 *p. m.*—The barometer rose steadily between 4 and 10 p. m., and rem
stationary during the last two hours. The thermometer fell very regularly
4 p. m. to 36° at midnight. The weather cleared up again completely by
remained so throughout the night. A steady gentle southeast wind preva
6 p. m. and midnight.

May 21, 8 *a. m.*—Clear weather and gentle to fresh easterly winds throu
rometer very steady until after 6 a. m., when it commenced to rise. The
changed but little between midnight and 6 a. m. A minimum of 34° wa
3 a. m.

4 *p. m.*—The barometer has been falling steadily since 8 a. m., and the s
ually clouded over with "cirri" moving from the southwest and spreading
toward evening. The thermometer rose rapidly during the forenoon, rea
imum of 59° at 2 p. m. A faintly colored halo was observed between 11 a.
Fresh but very variable winds throughout.

12 *p. m.*—Sky assumed a threatening appearance after night-fall, and rain
to fall at 11 50 p. m. Barometer falling. Variable westerly winds until 9
a gentle northeast wind set in.

May 22, 8 *a. m.*—Rain ended at 4.30 a. m., but the weather continues
Light northerly winds during the night, backing to westerly at 5 a. m. T
eter stood lowest at 1 a. m., reading 40°; rose to 44° at 5 a. m., and fell off
at 6 a. m. Barometer falling slowly.

4 *p. m.*—Continued cloudy weather, variable light airs and calms. Baro
slowly. Maximum temperature, 53° from 1 to 2 p. m.

12 *p. m.*—A very steady and light southeast wind set in after 4 p. m., whi
throughout the night. Weather cloudy and barometer falling. The ther
to 46° at 6 p. m., and remained near that height throughout the night.

May 23, 8 *a. m.*—Continued cloudy weather, falling barometer, and gen
wind. Temperature fluctuating between 45° and 46° until after 6 a. m., w
to rise steadily.

4 *p. m.*—Weather still cloudy and barometer falling. The thermometer
reaching a maximum of 64° at 2 p. m. Wind very variable, but chiefly sou
a "light to fresh" velocity.

12 *p. m.*—Southerly winds continued until after 7 p. m., when a steady no
in, which held on through the night. Weather partly fair and cloudy, the
ving with great velocity from a southerly point. The thermometer fell to 5
remaining near that point during the rest of the night. Barometer falling

May 24, 8 *a. m.*—Partly fair and cloudy weather during the past eight
light to fresh winds, the latter shifting to southeast at 4 a. m. Baro
steadily. The thermometer fluctuated between 49° and 50° until 6 a.
reached a minimum of 48°, and began to rise soon after.

4 *p. m.*—Wind shifted to the westward after 8 a. m., and increased t
Fair weather until noon, when the sky clouded over, and heavy rain fell
p. m. and 1.50 p. m.; after 3 p. m. the weather cleared up partly. The atm
pears to be charged with an unusual amount of electricity, as the teleg
much affected by it. Barometer falling throughout. The thermometer
during the forenoon, reaching a maximum of 69° at 12 a. m. After rain c
off to 53° at 3 p. m., and has now risen to 63°. Rain-fall, 0.11 inch.

12 *p. m.*—Cloudy and threatening weather, with fresh northwest wind. T
eter fell to 51° at 11.22 p. m. The barometer has risen since 4 p. m.

May 25, 8 *a. m.*—Light rain commenced at 12.45 a. m., and continued unt
Rain-fall, .17. The thermometer reached a minimum of 46° at 6 a. m. Baro
Fresh northwesterly winds throughout. The weather appears to clear up a
ceased.

4 *p. m.*—Fair weather, rising barometer, and gentle northwest wind. Ma
perature, 67° from 2 to 3 p. m.

12 *p. m.*—The barometer has risen steadily during the past eight hours, an
eter fell rapidly until 11 p. m., reading 43° at that time, which is the mini

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day. Fair weather and gentle northwest wind until 6 p. m. Clear sky and light north wind thereafter.

May 26, 8 *a. m.*—Clear sky until after 6 a. m., when a few cirri and cirro-cumuli appeared in the western horizon, which are gradually increasing. The barometer has continued to rise, and the thermometer stood at 43° between midnight and 5 a. m., and began to rise rapidly after 6 a. m. Gentle to fresh north wind throughout.

4 *p. m.*—The barometer has been falling slowly since 8 a. m., with increasing cloudiness and hazy sky. The thermometer reached a maximum of 72° at 12 m., and remained high (71° to 70°) until 4 p. m. Gentle west and northwest winds throughout.

12 *p. m.*—Wind backed to the southeast at 7 p. m. Weather cloudy, and barometer falling.

May 27, 8 *a. m.*—Gentle southeast wind during the early morning, veering to the east at 6.30 a. m. Barometer falling. The thermometer fluctuated between 50° and 51° between midnight and 6 a. m., rising to 56° at 7 a. m. Weather cloudy.

4 *p. m.*—Partly fair and cloudy weather during the past eight hours, with light southerly winds. Thermometer, 74° at 1 p. m. Barometer falling steadily.

12 *p. m.*—A steady southeast wind set in at 8 p. m. Weather fair and barometer falling.

May 28, 8 *a. m.*—Gentle southeast wind continued during the night and veered to the westward at 7.30 a. m. Sky partly overcast with cirrus and stratus clouds moving from the west. Minimum temperature, 51°.5 at 5 a. m. Barometer falling.

4 *p. m.*—Cloudy weather and fresh westerly winds. Light rain-shower between 10.15 and 11.30 a. m. Barometer continues to fall. Maximum temperature, 70°.

12 *p. m.*—The barometer commenced to rise after 4 p. m., and a fresh northwest wind prevailed during the past eight hours. The weather cleared up between 9 and 11 p. m., but became overcast again toward midnight. Thermometer fell to 57°.

May 29, 8 *a. m.*—Light and variable westerly winds since midnight; sky covered with low stratus clouds. Barometer rising steadily. Minimum temperature, 51° at 5 a. m.

4 *p. m.*—The weather cleared up during the forenoon, and continues "fair." The barometer changed but little after 9 a. m. Maximum temperature, 68° at 2 p. m. Fresh "westerly" winds throughout. Sergeants Lloyd and Sackett relieved from duty as assistants by Privates Seely and Smith.

12 *p. m.*—The barometer began to fall after 5 p. m., and fell steadily up to midnight. Temperature declined to 51° at 9 p. m., remained at that point until 11 p. m., and rose to 54° at midnight. Fresh northerly to westerly winds until 8 p. m., and light easterly wind thereafter. Sky overcast after 9 p. m.

May 30, 8 *a. m.*—Barometer remained about stationary between midnight and 5 a. m., and has risen steadily since the latter hour. The thermometer fell throughout the night, reaching a minimum of 37° at 6 a. m. Wind very variable. A dense fog set in at 4 a. m., which was succeeded by sleet at 7.30 a. m.

4 *p. m.*—Sleet ended at 8.20 a. m., and the weather began to clear up. Fresh but variable northerly winds throughout. Maximum temperature, 50°. Barometer rising steadily.

12 *p. m.*—Partly fair and cloudy weather during past eight hours, with nearly clear sky at midnight. The barometer has continued to rise steadily. The thermometer fell to 32°.5 at midnight, which is the minimum of the day. Wind from all points of the compass, with a "gentle to fresh" velocity.

May 31, 8 *a. m.*—Cold and cloudy during the early morning, the thermometer falling to 29° at 4 a. m. Light and variable winds throughout. Weather clearing up after 5 a. m. Barometer still rising steadily.

12 *p. m.*—Clear and pleasant weather throughout the day, with fresh westerly winds during the afternoon, and easterly winds at night. Barometer high and steady. Maximum temperature, 56° at 3 p. m. The instruments have remained in excellent condition throughout the month of May, and all observations were made at the proper hours.

Journal for the month of June.

June 1, 1873.—Commenced with clear sky and gentle easterly winds. Barometer high and steady. Thermometer fluctuating between 39° and 40° until after 5 a. m. During the forenoon the sky became gradually overcast with cirri moving from the northwest, and the barometer began to fall. Wind changed to the northwest at 8 a. m., increasing to fresh and brisk. At 1 p. m. the sky was completely overcast with cirro-stratus clouds and the weather assumed a threatening appearance, but cleared up partly toward evening, and the wind diminished in force. Maximum temperature, 66°. Barometer rising slightly toward midnight. Auroral display from 10.30 to 11.30 p. m., consisting of several streamers of a uniform bluish color, apparently radiating from a common center below the northern horizon and extending half way to the zenith. The telegraph instrument was constantly at work during the display.

June 2.—Day opened with fair weather and light northerly wind. Barometer rising

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Temperature falling from 54° at midnight to 37° at 5 a. m. Wind change and northwest between 9 and 10 a. m., increasing to fresh and brisk. Pa clear weather during the afternoon; lower atmosphere, smoky. Baromet tionary. Maximum temperature, 58° at 3 p. m. Variable light airs and the night, weather fair, sky partly covered with fine cirri moving very slo north, and giving rise to a faint halo at 9 p. m. Temperature falling to 4 and remaining about constant after that hour.

June 3.—Very hazy sky throughout the day. Upper clouds a continuous cirro-stratus, subsiding into stratus toward midnight. A well-defined, brig halo was visible at 1 p. m., forming one complete circle around the sun. western half of the halo was still visible, and did not entirely disappea 5 p. m. Barometer rising until 7 a. m., and falling steadily thereafte ature very low in the morning; minimum, 37°, rising to 59° during the af remaining steady at 44° during the night. Gentle northeast wind betwe and 8 a. m., followed by fresh westerly winds until 6 p. m., when a calm light south wind set in at 9 p. m.

June 4.—Commenced with threatening weather, and light southerly wi ter falling steadily. Thermometer steady. Light rain commenced at 2. continued until 10.30 a. m. The wind changed to the northeast at 8 a clouds descended lower down the mountains. Weather cleared up somewh ceased and the temperature rose rapidly, reaching a maximum of 66°. falling quite rapidly during the afternoon. Wind light and variable w calms. Rain recommenced at 6 p. m., and continued throughout the nigh works so badly that the signals could not be regularly acknowledged and 2.

June 5.—Rain ended at 5.20 a. m., but the weather continued cloudy and until evening, the clouds being very low during the forenoon, enveloping tains. Wind light and variable, from all points of the compass. Thunde heavy rain between 3.10 p. m. and 3.45 p. m. Barometer rising slowly, comparatively high during the afternoon, (64°–66°,) but falling to 47° at

June 6.—Day opened cold and cloudy. Thermometer 44° to 46°. Wind light. Barometer rising slowly during the forenoon. Light rain-showers noon, with some lightning. Variable westerly to northerly winds, w calms after 9 a. m. Barometer nearly stationary during the afternoon toward night. Maximum temperature, 65°. Quite a heavy rain-show rapidly from the westward, reaching the base at 1.15 p. m., and ascen Washington. The observers on stations 1 and 2 report "heavy hail" at t

June 7.—Commenced "cold and cloudy," with light easterly winds and changed westerly at 7 a. m., and continued from that direction with ge velocity until 8 p. m., when it backed to the east. Barometer rising The thermometer stood lowest at 3 a. m., (44°,) reached a maximum of 56 and fell to 48° at 8 p. m., remaining steady during rest of night. Clou during the forenoon. Numerous rain-showers during the afternoon and ceased at 11 p. m.

June 8.—Weather continued cloudy during the night, with fresh eas Thermometer steady at 48°. Barometer rising. Toward morning the clou break up, and the wind shifted to the westward, being very variable, but continued to move from the east and northeast. Barometer rising until n maining about stationary thereafter. Thermometer steady at 62° during th at 8 p. m. the last remnant of cloud had disappeared, and the sky was pe during the rest of the night. A gentle east wind prevailed during the nig

June 9.—Day opened clear and cool, with gentle easterly wind. Light break. Barometer steady. Weather continued clear until noon, when the partly overcast with cumulus clouds, which disappeared again at 6 p. m., lea sky. Temperature high during the afternoon. Variable northerly winds du and night. Barometer falling steadily after 6 a. m.

June 10.—Fair weather, with light and fresh northerly to westerly win out the day; sky "hazy." Barometer falling steadily. Thermometer midnight to 6 a. m., and rising rapidly thereafter, exhibiting a maximum p. m.; at 9 p. m. the wind changed to the south, and the temperature, wh clined rapidly between 7 and 8 p. m., rose 3°, and remained steady at 62° rest of the night. The sky clouded over with stratus clouds toward midn

June 11.—Day opened with threatening weather, and light southerly winds. Barometer falling. Temperature high and steady. Rain comme a. m., and continued until 7.40 a. m. The wind changed to the northwest fore the rain ceased, and the barometer began to rise after 8 a. m. Clou with fresh northwest wind and rising barometer, during the remainder of

June 12.—Partly fair and cloudy weather during the day, with variable and calms. Temperature low. Barometer rising throughout. At 9 p. m. were to be seen, and the weather continued clear up to midnight.

June 13.—Day opened fair and cold. Thermometer stationary at 39°.

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high and steady. The light north wind which prevailed at midnight died off at 12.15 a. m., and a "dead calm" continued until 4.15 a. m., when a light easterly wind set in, which changed to the westward toward noon, the barometer falling slightly during the forenoon, and temperature increasing rapidly. Partly fair and clear weather during the afternoon and night, with fresh westerly wind, the latter backing to southerly at 7 p. m.

June 14.—Partly fair and clear weather and slowly falling barometer throughout. Variable light and fresh winds, chiefly westerly until 7 p. m., when a calm ensued, which was followed by light airs from the northward at 11 p. m. Sky partly covered with cirri moving from the northwest. The thermometer fell from 48° at 1 a. m. to 43° at 4 a. m., reached a maximum of 64° at 1 p. m., and declined rapidly after sundown, reading 43° at midnight. The 5 a. m. observation was lost by Assistant Observer J. H. Smith, who fell asleep before the time of taking the observation.

June 15.—Partly fair and cloudy weather, with gentle northerly to westerly winds. Barometer falling.

June 16.—Day opened "cloudy," with light airs from the north, and calms. Barometer steady. The barometer rose 3° from midnight to 1 a. m., and remained stationary at 57° until 5 a. m. Weather cleared up partly after 6 a. m., and a heavy "haze" prevailed during the fore and afternoon. Temperature very high, ranging from 72° to 75°, a fresh northwest wind prevailing at the time. The barometer remained steady until after 2 p. m., when it began to fall. At 9 p. m. silent lightning was observed in the northwest horizon, followed by quite a severe thunder-storm. Rain commenced at 10.25 p. m., and continued up to midnight.

June 17.—Rain ceased at 1.15 a. m., but the weather continued threatening during the morning, with fresh northwest wind. Barometer fell considerably between midnight and 2 a. m., and began to rise at 3 a. m. Thermometer steady, changing only 2° during the night. At 9 a. m. the weather began to clear up, and by 3 p. m. the sky was perfectly clear. Rising barometer and fresh westerly to northerly winds throughout. The temperature increased very slightly during the afternoon, and fell off rapidly after sunset, reading 43° at midnight.

June 18.—Day commenced clear and cold, with a gentle breeze from the north. Barometer rising slowly. During the forenoon the sky became gradually overcast with "cirri," moving from the northwest, and the barometer began to fall. Fresh westerly winds during the day, veering more southerly at 7 p. m. Barometer still falling at night, and the weather becoming threatening.

June 19.—Light rain between 2.15 a. m. and 4.15 a. m., the barometer falling until 3 a. m. and rising slowly thereafter. Cloudy and very hazy weather during the forenoon, with rapidly-rising temperature and fresh northwest wind. Rain recommenced at 2.25 p. m. and continued until 3.30 p. m.; the barometer rose rapidly between 2 and 3 p. m., but fell steadily after 3 p. m.

The weather cleared up after rain ceased, and the wind changed to the northeast, being very variable after 6 p. m. The thermometer, which at noon read 74°, fell to 64° at 3 p. m., rose to 70° at 6 p. m., and fluctuated between 66° and 70° during the remainder of the night.

June 20.—The barometer fluctuated greatly between midnight and 4 a. m., remained nearly stationary between 5 a. m. and 3 p. m., and rose steadily during the remainder of the day. Heavy rain between 2.50 and 3.30 a. m., the temperature being exceptionally high until after the commencement of rain. Fresh westerly winds prevailed at midnight, easterly at 4 a. m., and dying off at 7 a. m., being followed by a fresh northwest wind, which increased to a brisk velocity toward noon, and moderated toward night. Generally fair weather after 5 a. m. Sky partly covered with cumulus and stratus clouds, moving with great velocity from the northwest. The temperature declined rapidly after 7 p. m., reading 48° at midnight. Aurora appeared at 11.05 p. m. in the form of a band of light, extending in a northwest and southeast direction, from a point about 10° above the northwest horizon to some 5° past the zenith, the thickest part near the horizon. Brilliant on first appearance, but rapidly faded away from the zenith downward, and disappeared at 11.16 p. m. In general appearance it resembled the tail of a comet.

June 21.—Day opened cold and fair; calm until 4 a. m., when a light northwest wind set in, which continued throughout, increasing to very fresh during the forenoon, and diminishing in force at night. Barometer fluctuating until noon, and rising steadily thereafter. The sky became overcast at 10 a. m., and a heavy shower of hail, followed by rain, fell between 12.20 p. m. and 2.30 p. m. Cold and cloudy weather during the afternoon and evening, the clouds began to break up after 9 p. m., and the weather promised fair up to midnight. The temperature fluctuated considerably during the twenty-four hours, being 45° at 1 a. m., 43° at 6 a. m., 57° at 12 m., 47° at 1 p. m., 51° at 4 p. m., and 39° at midnight. The cable worked so poorly after 8 a. m. that the signals could not be properly acknowledged.

June 22.—Day opened with fair weather and light north wind. Temperature 36° to 38°. Sky clouding up after 7 a. m., and weather continues cold and cloudy throughout the day, with light and variable winds. Toward night a steady northeast wind set in,

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and the weather cleared up completely by 9 p. m. Barometer rising steadily throughout.

June 23.—Clear weather, with gentle north to northeast wind from midnight to 8 a. m.; thermometer steady at 40° during the early morning. At 9 a. m. the wind changed to west, and the sky commenced clouding up with cumulus and stratus clouds, moving from the southeast. Cloudy weather with gentle westerly wind during the afternoon. Thermometer, 60° to 68°. At 6 p. m. the wind hauled southerly, and the clouds began to break up. No clouds visible after 9 p. m. The barometer rose steadily until noon and remained about stationary thereafter.

June 24.—Day opened clear and pleasant with gentle southeasterly wind. During the forenoon the weather became cloudy, and wind changed to north and west; clearing up toward evening, wind backing to southeast. Clear sky after 9 p. m. Barometer rising throughout. Temperature high.

June 25.—Partly fair and clear weather, with very high barometer and high temperature. Wind variable from all points of the compass, but clouds moving steadily from eastward. Barometer steady.

June 26.—Continued fair and warm weather. Sky partly covered with cirri and haze. Barometer falling steadily after 10 a. m. Light southeast wind during the early morning, light to fresh westerly winds during the day, and gentle northerly winds at night. Maximum temperature, 78°. At 10.56 p. m. a brilliant aurora made its appearance in the form of five distinct parallel bands of light, extending from the northwest horizon to some 10° past the zenith. These bands shot up in waves, alternately approaching and receding, and gradually lengthening until they reached the southeast horizon. At 11.08 it began to fade away until almost invisible, but at 11.12 suddenly increased in brilliancy, covering the sky from northwest to east 15° north with waves of light extending past the zenith. This continued until 11.25; from that time the aurora slowly faded away, until it disappeared at 11.55 p. m.

NOTE.—During the presence of the aurora, particularly during the time of its greatest brilliancy, the telegraph-wire was strongly charged with electricity, the instrument working the same as during the thunder-storm.

June 27.—Day opened clear and pleasant, with gentle northeast wind. At 5 a. m. the sky became partly covered with cirri, and the lower atmosphere grew hazy; wind shifted to west at 10 a. m., the temperature increasing rapidly, and weather clearing up again until evening. Partly fair and cloudy weather during night. The barometer fell uninterruptedly throughout.

June 28.—Day opened warm and cloudy, with light easterly winds. Barometer falling. Light rain commenced at 6 a. m. and continued until 10.40 a. m., when the barometer began to rise and the wind shifted to the westward. Cloudy weather during the afternoon, with high temperature and slowly-rising barometer. Clearing up toward evening—clear sky after 10 p. m. About 10.30 a. m. a frightful accident occurred to Private William Seely, one of the assistants attached to this station. He was sliding down the track from the Waumback House (station No. 3) on a board, when he was run into by Sergt. D. H. Sackett, who, being unable to control his board, in consequence of the track being very slippery from the effects of a prevailing rain, struck Seely's board with tremendous force. Seely was thrown forward on his head, and, striking on the cross-ties, was fearfully mangled. Sergeant Sackett instantly summoned assistance, and through the kindness of Mr. Walter Aiken a train was as quickly as possible run to the place where the accident occurred, and Private Seely was conveyed to the railway-depot. It was not until 10 p. m. that a surgeon could be obtained, the wire to Littleton being down. On being apprised of this fact Sergeant Sackett rode to Littleton and procured the services of Dr. Bugby. On examination Seely's injuries were found to consist of a fractured skull, his right leg broken above the knee, his left ear torn off, and in addition the muscles of his chest and his vertebral column severely wrenched. As he was apparently suffering great pain, and required constant watching, by the advice of Dr. Bugby I consented to his removal to Littleton, where he could have proper nursing and medical attendance. Private Seely was unconscious up to the time of his removal, which took place on the morning of the 29th. Thanks are due to Mr. W. Aiken and employés of the Mount Washington Railroad, also to Mr. Edward Cox and ladies, for kind and efficient help rendered the suffering man.

June 29.—Partly fair and cloudy weather, with very high temperature and light variable winds. Barometer fluctuating and rising slowly. The minute observations between 9 and 10 p. m. had to be dispensed with, as the office was being fitted up by Mr. Gates, of the Western Union Telegraph Company, and the barometer had to be taken down.

June 30.—Warm and cloudy weather throughout. Barometer rising slowly. Gentle southerly winds during the day, increasing to fresh at night. The instruments remained in good condition during the month, with the exception of three cups of the Daniells battery, which became leaky.

ROBERT SEYBOTH,
Observer-Sergeant, Signal-Service, United States Army.

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Meteorological record for May 1, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.					*a. m.*					*a. m.*					*a. m.*			
Summit	8 0	23.865	51	23.842	Summit	8 15	23.883	55	23.831	Summit	8 30	23.873	56	23.819	Summit	8 45	23.870	56	23.816
Base		27.380	47	27.324	Base		27.386	48	27.328	Base		27.390	50	27.328	Base		27.391	51.5	27.325
Summit	8 1	23.884	52	23.839	Summit	8 16	23.883	55	23.831	Summit	8 31	23.875	56	23.821	Summit	8 46	23.865	56	23.811
Base		27.380	47	27.324	Base		27.386	48	27.328	Base		27.391	50.5	27.328	Base		27.390	51.5	27.324
Summit	8 2	23.882	52	23.837	Summit	8 17	23.883	55	23.831	Summit	8 32	23.876	56	23.822	Summit	8 47	23.867	56	23.813
Base		27.380	47	27.324	Base		27.386	48.5	27.327	Base		27.392	50.5	27.329	Base		27.390	51.5	27.324
Summit	8 3	23.879	52	23.834	Summit	8 18	23.880	55	23.828	Summit	8 33	23.879	56	23.825	Summit	8 48	23.870	57	23.814
Base		27.383	48	27.325	Base		27.380	49	27.320	Base		27.393	50.5	27.330	Base		27.390	51.5	27.324
Summit	8 4	23.880	53	23.832	Summit	8 19	23.880	55	23.828	Summit	8 34	23.870	56	23.816	Summit	8 49	23.875	57	23.819
Base		27.383	48	27.325	Base		27.389	49.5	27.328	Base		27.390	50.5	27.327	Base		27.392	51.5	27.326
Summit	8 5	23.880	53	23.832	Summit	8 20	23.879	55	23.827	Summit	8 35	23.873	56	23.819	Summit	8 50	23.875	57	23.819
Base		27.384	48	27.326	Base		27.389	50	27.327	Base		27.391	51	27.326	Base		27.393	51.5	27.327
Summit	8 6	23.880	53	23.832	Summit	8 21	23.879	55	23.827	Summit	8 36	23.873	56	23.819	Summit	8 51	23.870	57	23.814
Base		27.384	48	27.326	Base		27.389	50	27.327	Base		27.387	51	27.322	Base		27.393	51.5	27.327
Summit	8 7	23.880	54	23.830	Summit	8 22	23.880	55	23.828	Summit	8 37	23.871	56	23.817	Summit	8 52	23.870	57	23.814
Base		27.383	48	27.325	Base		27.389	50	27.327	Base		27.388	51	27.323	Base		27.394	51.5	27.328
Summit	8 8	23.881	54	23.831	Summit	8 23	23.880	55	23.828	Summit	8 38	23.870	56	23.816	Summit	8 53	23.868	57	23.812
Base		27.383	48	27.325	Base		27.390	50	27.328	Base		27.390	51	27.325	Base		27.395	51.5	27.329
Summit	8 9	23.881	54	23.831	Summit	8 24	23.878	55	23.826	Summit	8 39	23.875	56	23.821	Summit	8 54	23.870	57	23.814
Base		27.384	48	27.326	Base		27.389	50	27.327	Base		27.390	51	27.325	Base		27.397	51.5	27.331
Summit	8 10	23.881	54	23.831	Summit	8 25	23.878	55	23.826	Summit	8 40	23.873	56	23.819	Summit	8 55	23.876	57	23.820
Base		27.384	48	27.326	Base		27.388	50	27.326	Base		27.389	51	27.324	Base		27.394	51.5	27.328
Summit	8 11	23.882	54	23.832	Summit	8 26	23.875	55	23.823	Summit	8 41	23.873	56	23.819	Summit	8 56	23.870	57	23.814
Base		27.387	48	27.329	Base		27.388	50	27.326	Base		27.388	51	27.323	Base		27.393	51.5	27.327
Summit	8 12	23.882	55	23.830	Summit	8 27	23.870	55	23.818	Summit	8 42	23.870	56	23.816	Summit	8 57	23.870	57	23.814
Base		27.387	48	27.329	Base		27.389	50	27.327	Base		27.391	51.5	27.325	Base		27.392	51.5	27.326
Summit	8 13	23.883	55	23.831	Summit	8 28	23.875	55	23.823	Summit	8 43	23.870	56	23.816	Summit	8 58	23.870	57	23.814
Base		27.387	48	27.329	Base		27.389	50	27.327	Base		27.390	51.5	27.324	Base		27.392	51.5	27.326
Summit	8 14	23.883	55	23.831	Summit	8 29	23.873	56	23.819	Summit	8 44	23.868	56	23.814	Summit	8 59	23.870	57	23.814
Base		27.389	48.5	27.330	Base		27.390	50	27.328	Base		27.392	51.5	27.326	Base		27.392	51.5	27.326

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 2, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.					a. m.					a. m.			
Summit	8 0	23.813	58	23.755	Summit	8 15	23.820	65	23.747	Summit	8 30	23.832	67	23.754
Base		27.230	58	27.148	Base		27.241	59	27.158	Base		27.241	59	27.156
Summit	8 1	23.813	58	23.753	Summit	8 16	23.820	65	23.747	Summit	8 31	23.832	67	23.754
Base		27.232	58	27.150	Base		27.241	59	27.158	Base		27.245	59.5	27.161
Summit	8 2	23.810	58	23.753	Summit	8 17	23.821	65.5	23.747	Summit	8 32	23.832	67	23.754
Base		27.232	58.5	27.149	Base		27.240	59	27.157	Base		27.244	59.5	27.160
Summit	8 3	23.810	58.5	23.751	Summit	8 18	23.822	65.5	23.748	Summit	8 33	23.832	67	23.754
Base		27.235	58.5	27.153	Base		27.240	59	27.157	Base		27.243	59.5	27.158
Summit	8 4	23.813	58	23.753	Summit	8 19	23.822	66	23.747	Summit	8 34	23.832	67.5	23.753
Base		27.228	58.5	27.156	Base		27.240	59	27.157	Base		27.243	59.5	27.159
Summit	8 5	23.815	60	23.752	Summit	8 20	23.822	66	23.747	Summit	8 35	23.832	67.5	23.753
Base		27.228	59	27.155	Base		27.241	59	27.158	Base		27.241	58.5	27.157
Summit	8 6	23.815	61	23.750	Summit	8 21	23.823	66	23.748	Summit	8 36	23.832	67.5	23.753
Base		27.230	59	27.156	Base		27.230	59	27.156	Base		27.240	59.5	27.156
Summit	8 7	23.815	62	23.748	Summit	8 22	23.825	66.5	23.749	Summit	8 37	23.832	67.5	23.753
Base		27.229	59	27.156	Base		27.229	59	27.156	Base		27.242	60	27.156
Summit	8 8	23.815	62.5	23.747	Summit	8 23	23.825	66.5	23.749	Summit	8 38	23.832	68	23.752
Base		27.230	59	27.156	Base		27.240	59	27.157	Base		27.245	60	27.159
Summit	8 9	23.820	62.5	23.753	Summit	8 24	23.825	66.5	23.749	Summit	8 39	23.834	68	23.754
Base		27.230	59	27.156	Base		27.240	59	27.157	Base		27.243	60	27.157
Summit	8 10	23.830	63	23.751	Summit	8 25	23.830	67	23.759	Summit	8 40	23.834	68	23.754
Base		27.230	59	27.156	Base		27.242	59	27.159	Base		27.245	60	27.159
Summit	8 11	23.830	63.5	23.750	Summit	8 26	23.830	67	23.758	Summit	8 41	23.834	68	23.754
Base		27.230	59	27.156	Base		27.241	59	27.158	Base		27.245	60	27.159
Summit	8 12	23.820	64	23.749	Summit	8 27	23.830	67	23.753	Summit	8 42	23.834	68	23.754
Base		27.230	59	27.156	Base		27.241	59	27.158	Base		27.240	60	27.163
Summit	8 13	23.830	64	23.749	Summit	8 28	23.830	67	23.753	Summit	8 43	23.834	68	23.755
Base		27.230	59	27.156	Base		27.241	59	27.156	Base		27.240	60	27.163
Summit	8 14	23.820	64.5	23.748	Summit	8 29	23.832	67	23.754	Summit	8 44	23.835	68	23.755
Base		27.230	59	27.156	Base		27.241	59	27.156	Base		27.240	60	27.164

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.			
Summit	8 45	23.835	68	23.755
Base		27.250	60	27.164
Summit	8 46	23.835	68	23.755
Base		27.248	60	27.163
Summit	8 47	23.835	68	23.755
Base		27.249	60	27.163
Summit	8 48	23.837	68	23.757
Base		27.250	60	27.164
Summit	8 49	23.837	68	23.757
Base		27.250	60	27.164
Summit	8 50	23.837	68.5	23.756
Base		27.250	60	27.164
Summit	8 51	23.837	68.5	23.756
Base		27.249	60	27.163
Summit	8 52	23.836	68.5	23.755
Base		27.248	60	27.163
Summit	8 53	23.835	68.5	23.754
Base		27.249	60	27.163
Summit	8 54	23.835	68.5	23.754
Base		27.249	60	27.163
Summit	8 55	23.835	68	23.753
Base		27.251	60	27.165
Summit	8 56	23.835	68	23.755
Base		27.251	60	27.165
Summit	8 57	23.835	68	23.755
Base		27.251	60	27.165
Summit	8 58	23.835	68	23.755
Base		27.251	60	27.165
Summit	8 59	23.835	68	23.755
Base		27.251	60	27.165

NOTE.—Elevation of barometer at summit above sea-level, 6,283.4 feet. Elevation of barometer at base above sea-level, 2,806.3 feet. Barometer readings corrected for temperature and instrumental error only.

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(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.					*a. m.*					*a. m.*					*a. m.*			
Summit	8 0	23.475	53	23.428	Summit	8 15	23.479	54	23.430	Summit	8 30	23.483	54.5	23.433	Summit	8 45	23.479	54.5	23.429
Base		26.910	52.5	26.842	Base		26.921	54	26.849	Base		26.922	53.5	26.852	Base		26.914	53	26.845
Summit	8 1	23.475	53	23.428	Summit	8 16	23.479	54	23.430	Summit	8 31	23.483	54.5	23.433	Summit	8 46	23.479	54.5	23.429
Base		26.912	52.5	26.844	Base		26.923	54	26.851	Base		26.922	53.5	26.852	Base		26.914	53	26.845
Summit	8 2	23.478	53	23.431	Summit	8 17	23.479	54.5	23.429	Summit	8 32	23.480	54.5	23.430	Summit	8 47	23.477	55	23.426
Base		26.912	53	26.843	Base		26.923	54	26.851	Base		26.920	54	26.849	Base		26.917	53	26.848
Summit	8 3	23.478	53	23.431	Summit	8 18	23.479	54.5	23.429	Summit	8 33	23.480	54.5	23.430	Summit	8 48	23.477	55	23.426
Base		26.912	53	26.843	Base		26.923	54	26.851	Base		26.919	54	26.848	Base		26.919	53	26.850
Summit	8 4	23.479	53.5	23.432	Summit	8 19	23.480	54.5	23.430	Summit	8 34	23.480	54.5	23.430	Summit	8 49	23.477	55	23.426
Base		26.914	53.5	26.844	Base		26.923	54	26.851	Base		26.919	54	26.848	Base		26.918	53	26.849
Summit	8 5	23.480	53.5	23.432	Summit	8 20	23.480	54.5	23.430	Summit	8 35	23.478	54.5	23.428	Summit	8 50	23.478	55	23.427
Base		26.913	53.5	26.843	Base		26.920	54	26.848	Base		26.919	53.5	26.850	Base		26.918	53	26.849
Summit	8 6	23.479	53.5	23.431	Summit	8 21	23.480	54.5	23.430	Summit	8 36	23.479	54.5	23.429	Summit	8 51	23.478	55	23.427
Base		26.913	53.5	26.843	Base		26.920	54	26.848	Base		26.919	53.5	26.850	Base		26.919	53	26.850
Summit	8 7	23.479	54	23.430	Summit	8 22	23.480	54.5	23.430	Summit	8 37	23.480	54.5	23.430	Summit	8 52	23.478	55	23.427
Base		26.911	53.5	26.841	Base		26.919	54	26.847	Base		26.918	53.5	26.849	Base		26.918	53	26.849
Summit	8 8	23.480	54	23.431	Summit	8 23	23.478	54.5	23.428	Summit	8 38	23.480	54.5	23.430	Summit	8 53	23.478	55	23.427
Base		26.911	53.5	26.841	Base		26.919	54	26.847	Base		26.918	53.5	26.848	Base		26.919	53	26.850
Summit	8 9	23.480	54	23.431	Summit	8 24	23.481	54.5	23.431	Summit	8 39	23.480	54.5	23.430	Summit	8 54	23.478	55	23.427
Base		26.918	54	26.846	Base		26.918	54	26.846	Base		26.919	53.5	26.849	Base		26.919	53	26.850
Summit	8 10	23.480	54	23.431	Summit	8 25	23.483	54.5	23.433	Summit	8 40	23.480	54.5	23.430	Summit	8 55	23.478	55	23.427
Base		26.919	54	26.847	Base		26.918	54	26.846	Base		26.917	53	26.847	Base		26.915	53	26.846
Summit	8 11	23.480	54	23.431	Summit	8 26	23.483	54.5	23.433	Summit	8 41	23.480	54.5	23.430	Summit	8 56	23.478	55	23.427
Base		26.919	54	26.847	Base		26.919	54	26.847	Base		26.914	53	26.845	Base		26.915	53	26.846
Summit	8 12	23.480	54	23.431	Summit	8 27	23.483	54.5	23.433	Summit	8 42	23.480	54.5	23.430	Summit	8 57	23.478	55	23.427
Base		26.922	54	26.850	Base		26.919	54	26.847	Base		26.914	53	26.845	Base		26.915	53	26.846
Summit	8 13	23.480	54	23.431	Summit	8 28	23.483	54.5	23.433	Summit	8 43	23.479	54.5	23.429	Summit	8 58	23.480	55.5	23.428
Base		26.922	54	26.850	Base		26.919	53.5	26.849	Base		26.913	53	26.844	Base		26.917	53	26.848
Summit	8 14	23.480	54	23.431	Summit	8 29	23.483	54.5	23.433	Summit	8 44	23.479	54.5	23.429	Summit	8 59	23.480	55.5	23.428
Base		26.923	54	26.851	Base		26.921	53.5	26.851	Base		26.913	53	26.844	Base		26.917	53	26.848

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 4, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.					*a. m.*					*a. m.*					*a. m.*			
Summit	8 0	23.523	45.5	23.493	Summit.	8 15	23.535	48.5	23.498	Summit.	8 30	23.532	51	23.490	Summit.	8 45	23.555	53.5	23.508
Base...		27.069	46	27.011	Base ...		27.068	47	27.013	Base ...		27.070	47.5	27 014	Base ...		27.071	46.5	27.018
Summit	8 1	23.525	45.5	23.495	Summit.	8 16	23.535	49	23.497	Summit.	8 31	23.540	51	23.498	Summit.	8 46	23.555	54	23.507
Base...		27.063	46	27.011	Base ...		27.068	47	27.013	Base ...		27.070	47.5	27.014	Base ...		27.072	46.5	27.019
Summit	8 2	23.528	46	23.497	Summit.	8 17	23.534	49	23.496	Summit.	8 32	23.540	51	23.498	Summit.	8 47	23.558	54	23.509
Base...		27.065	46.5	27.012	Base ...		27.068	47	27.013	Base ...		27.070	47	27.015	Base ...		27.072	46.5	27.019
Summit	8 3	23.530	46	23.499	Summit.	8 18	23.534	49	23.496	Summit.	8 33	23.542	51.5	23.499	Summit.	8 48	23.560	54.5	23.510
Base...		27.065	46.5	27.012	Base ...		27.069	47	27.014	Base ...		27.070	47	27.015	Base ...		27.071	46.5	27.018
Summit	8 4	23.530	46.5	23.498	Summit.	8 19	23.530	49.5	23.491	Summit.	8 34	23.540	51.5	23.497	Summit.	8 49	23.560	54.5	23.510
Base...		27.068	47	27.013	Base ...		27.069	47	27.014	Base ...		27.070	47	27.015	Base ...		27.072	46.5	27.019
Summit	8 5	23.525	46.5	23.493	Summit.	8 20	23.520	49.5	23.491	Summit.	8 35	23.543	51.5	23.500	Summit	8 50	23.562	55	23.511
Base...		27.067	47	27.012	Base ...		27.069	47	27.014	Base ...		27.071	47	27.016	Base ...		27.073	46	27.021
Summit	8 6	23.522	47	23.494	Summit.	8 21	23.535	50	23.495	Summit	8 36	23.550	52	23.506	Summit.	8 51	23.563	55	23.512
Base...		27.067	47	27.012	Base ...		27.068	47	27.013	Base ...		27.070	47	27.015	Base ...		27.073	46	27.021
Summit	8 7	23.528	47	23.494	Summit.	8 22	23.538	50	23.498	Summit.	8 37	23.550	52	23.506	Summit.	8 52	23.563	55	23.512
Base...		27.066	47	27.011	Base ...		27.068	47	27.013	Base ...		27.071	47	27.016	Base ...		27.075	46	27.023
Summit	8 8	23.528	47	23.494	Summit	8 23	23.538	50	23.498	Summit.	8 38	23.552	52.5	23.507	Summit.	8 53	23.565	55	23.514
Base...		27.068	47	27.013	Base ...		27.068	47	27.013	Base ...		27.071	47	27.016	Base ...		27.078	46.5	27.025
Summit	8 9	23.525	47	23.491	Summit.	8 24	23.538	50	23.498	Summit.	8 39	23.550	52.5	23.505	Summit.	8 54	23.565	55.5	23.513
Base...		27.068	47	27.013	Base ...		27.067	47	27.012	Base ...		27.071	47	27.016	Base ...		27.078	46.5	27.025
Summit	8 10	23.523	47.5	23.488	Summit	8 25	23.540	50.5	23.499	Summit.	8 40	23.550	52.5	23.505	Summit.	8 55	23.567	55.5	23.515
Base...		27.068	47	27.013	Base ...		27.068	47	27.013	Base ...		27.071	46.5	27.018	Base ...		27.080	46.5	27.027
Summit	8 11	23.525	47.5	23.490	Summit.	8 26	23.540	50.5	23.499	Summit	8 41	23.550	53	23.504	Summit.	8 56	23.568	56	23.515
Base...		27.068	47	27.013	Base ...		27.068	47	27.013	Base ...		27.072	46.5	27.019	Base ...		27.081	47	27.026
Summit	8 12	23.531	48	23.494	Summit.	8 27	23.530	50.5	23.489	Summit	8 42	23.552	53	23.506	Summit.	8 57	23.570	56	23.517
Base...		27.068	47	27.013	Base ...		27.068	47	27.013	Base ...		27.072	46.5	27.019	Base ...		27.081	47	27.026
Summit	8 13	23.535	48	23.499	Summit	8 28	23.533	50.5	23.492	Summit	8 43	23.553	53.5	23.506	Summit	8 58	23.570	56.5	23.516
Base ...		27.069	47	27.014	Base ...		27.068	47	27.013	Base ...		27.071	46.5	27.018	Base ...		27.080	47	27.025
Summit	8 14	23.538	48.5	23.501	Summit.	8 29	23.530	51	23.489	Summit	8 44	23.553	53.5	23.506	Summit.	8 59	23.570	56.5	23.516
Base...		27.069	47	27.014	Base ...		27.068	47	27.013	Base ...		27.071	46.5	27 018	Base ...		27.080	47	27.025

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,290.3 feet. Barometer readings corrected for temperature and instrumental error only.

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(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.					*a. m.*					*a. m.*					*a. m.*			
Summit	8 0	23.578	46	23.546	Summit.	8 15	23.592	53.5	23.545	Summit.	8 30	23.595	55	23.543	Summit.	8 45	23.604	60	23.542
Base		27.168	58.5	27.086	Base		27.172	59.5	27.087	Base		27.179	59	27.095	Base		27.180	58	27.099
Summit	8 1	23.579	46	23.547	Summit.	8 16	23.592	54	23.544	Summit.	8 31	23.595	56	23.541	Summit.	8 46	21.608	60	23.546
Base		27.168	58.5	27.086	Base		27.172	59.5	27.087	Base		27.178	59	27.094	Base		27.180	58	27.099
Summit	8 2	23.578	46.5	23.545	Summit.	8 17	23.592	54	23.544	Summit.	8 32	23.598	56	21.544	Summit.	8 47	23.608	60	23.546
Base		27.169	59	27.085	Base		27.172	59.5	27.087	Base		27.179	59	27.095	Base		27.181	58	27.100
Summit	8 3	23.579	47	23.545	Summit.	8 18	23.592	54	23.544	Summit.	8 33	23.601	56	23.547	Summit.	8 48	23.609	60	23.547
Base		27.169	59	27.085	Base		27.172	59.5	27.087	Base		27.179	59	27.095	Base		27.181	58	27.100
Summit	8 4	23.579	48	23.543	Summit.	8 19	23.592	54	23.544	Summit.	8 34	23.602	57	23.546	Summit.	8 49	23.604	60.5	23.541
Base		27.169	59	27.085	Base		27.175	59.5	27.090	Base		27.179	59	27.095	Base		27.180	57.5	27.100
Summit	8 5	23.580	49	23.542	Summit.	8 20	23.592	54	23.544	Summit.	8 35	23.605	57.5	23.542	Summit.	8 50	23.604	61	23.540
Base		27.169	59	27.085	Base		27.178	59.5	27.093	Base		27.179	59	27.095	Base		27.180	57.5	27.100
Summit	8 6	23.581	50	23.541	Summit.	8 21	23.592	54	23.543	Summit.	8 36	23.603	58	23.545	Summit.	8 51	23.605	61	23.541
Base		27.173	59	27.089	Base		27.178	59.5	27.093	Base		27.180	59	27.096	Base		27.181	57.5	27.101
Summit	8 7	23.581	50	23.541	Summit.	8 22	23.593	54	23.544	Summit.	8 37	23.605	58	23.547	Summit.	8 52	23.608	61	23.544
Base		27.173	59	27.089	Base		27.178	59.5	27.093	Base		27.179	58.5	27.096	Base		27.180	57.5	27.100
Summit	8 8	23.582	50.5	23.541	Summit.	8 23	23.593	54.5	23.543	Summit.	8 38	23.608	58	23.550	Summit.	8 53	23.608	61	23.544
Base		27.172	59	27.088	Base		27.178	59.5	27.093	Base		27.180	58.5	27.097	Base		27.180	57.5	27.100
Summit	8 9	23.582	51	23.540	Summit.	8 24	23.596	54.5	23.546	Summit.	8 39	23.608	58.5	23.549	Summit.	8 54	23.608	61	23.544
Base		27.172	59	27.088	Base		27.177	59.5	27.092	Base		27.181	58.5	27.098	Base		27.180	57.5	27.100
Summit	8 10	23.585	51.5	23.542	Summit.	8 25	23.596	55	23.544	Summit.	8 40	23.608	59	23.548	Summit.	8 55	23.608	61	23.544
Base		27.173	59	27.089	Base		27.178	59.5	27.093	Base		27.179	58	27.098	Base		27.180	57.5	27.100
Summit	8 11	23.585	52	23.541	Summit.	8 26	23.596	55	23.544	Summit.	8 41	23.602	59	23.542	Summit.	8 56	23.605	61	23.541
Base		27.173	59	27.089	Base		27.176	59.5	27.091	Base		27.179	58	27.098	Base		27.180	57.5	27.100
Summit	8 12	23.589	52	23.545	Summit.	8 27	23.595	55	23.543	Summit.	8 42	23.604	59	23.544	Summit.	8 57	23.605	61	23.541
Base		27.173	59	27.089	Base		27.176	59.5	27.091	Base		27.180	58	27.099	Base		27.181	57.5	27.101
Summit	8 13	23.589	52.5	23.544	Summit.	8 28	23.595	55	21.543	Summit.	8 43	23.604	59	23.544	Summit.	8 58	23.605	61.5	23.540
Base		27.172	59	27.088	Base		27.176	59	27.092	Base		27.180	58	27.099	Base		27.179	57.5	27.059
Summit	8 14	23.590	53	23.544	Summit.	8 29	23.595	55	23.543	Summit.	8 44	23.604	60	23.542	Summit.	8 59	23.606	62	23.540
Base		27.173	59.5	27.088	Base		27.179	59	27.095	Base		27.180	58	27.099	Base		27.179	57.5	27.099

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings erected for temperature and instrumental error only.

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Meteorological record for May 6, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.					a. m.					a. m.			
Summit	8 0	23.870	44	23.842	Summit	8 15	23.885	51	23.842	Summit	8 30	23.896	53	23.849
Base		27.513	50	27.450	Base		27.517	51	27.452	Base		27.520	51	27.455
Summit		23.870	44.5	23.841	Summit		23.880	51	23.837	Summit		23.900	53	23.853
Base	8 1	27.513	50	27.450	Base	8 16	27.518	51	27.453	Base	8 31	27.520	51	27.455
Summit		23.870	45	23.840	Summit		23.883	50.5	23.840	Summit		23.900	53.5	23.852
Base	8 2	27.511	50	27.448	Base	8 17	27.517	51	27.453	Base	8 32	27.521	51	27.456
Summit		23.875	46	23.842	Summit		23.882	51	23.839	Summit		23.898	53.5	23.849
Base	8 3	27.511	50	27.448	Base	8 18	27.518	51	27.453	Base	8 33	27.521	51	27.456
Summit		23.875	46.5	23.841	Summit		23.883	51.5	23.839	Summit		23.915	54	23.865
Base	8 4	27.512	50	27.449	Base	8 19	27.520	51	27.455	Base	8 34	27.521	51	27.456
Summit		23.875	47	23.840	Summit		23.885	51.5	23.841	Summit		23.900	54	23.850
Base	8 5	27.512	50	27.449	Base	8 20	27.518	51	27.453	Base	8 35	27.521	51	27.456
Summit		23.868	48	23.831	Summit		23.870	51	23.847	Summit		23.900	54.5	23.849
Base	8 6	27.513	50	27.450	Base	8 21	27.519	51	27.454	Base	8 36	27.523	51	27.458
Summit		23.868	48	23.831	Summit		23.900	51.5	23.856	Summit		23.910	54.5	23.859
Base	8 7	27.515	50.5	27.451	Base	8 22	27.520	51	27.455	Base	8 37	27.523	51	27.458
Summit		23.870	48.5	23.832	Summit		23.900	51.5	23.856	Summit		23.905	54.5	23.854
Base	8 8	27.515	50.5	27.451	Base	8 23	27.519	51	27.454	Base	8 38	27.525	51.5	27.459
Summit		23.873	49	23.833	Summit		23.903	52	23.858	Summit		23.910	55	23.860
Base	8 9	27.516	50.5	27.452	Base	8 24	27.519	51	27.454	Base	8 39	27.523	51.5	27.458
Summit		23.875	49	23.836	Summit		23.898	52	23.843	Summit		23.900	55	23.848
Base	8 10	27.516	50.5	27.452	Base	8 25	27.521	51	27.456	Base	8 40	27.523	51.5	27.457
Summit		23.875	49.5	23.835	Summit		23.896	52	23.843	Summit		23.895	55.5	23.842
Base	8 11	27.517	51	27.452	Base	8 26	27.520	51	27.455	Base	8 41	27.523	51.5	27.457
Summit		23.878	50	23.837	Summit		23.893	52	23.848	Summit		23.900	55.5	23.847
Base	8 12	27.515	51	27.450	Base	8 27	27.520	51	27.455	Base	8 42	27.522	51.5	27.456
Summit		23.875	50	23.834	Summit		23.892	52.5	23.846	Summit		23.900	55.5	23.847
Base	8 13	27.515	51	27.450	Base	8 28	27.521	51	27.456	Base	8 43	27.521	51.5	27.455
Summit		23.873	50.5	23.841	Summit		23.870	53	23.843	Summit		23.900	56	23.846
Base	8 14	27.517	51	27.452	Summit	8 29	27.520	51	27.455	Base	8 44	27.521	51.5	27.455

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.			
Summit	8 45	23.900	56	23.846
Base		27.522	51.5	27.456
Summit		23.910	56	23.856
Base	8 46	27.522	51.5	27.456
Summit		23.905	56	23.851
Base	8 47	27.523	51.5	27.457
Summit		23.910	56	23.856
Base	8 48	27.522	51.5	27.456
Summit		23.910	56	23.856
Base	8 49	27.522	51.5	27.456
Summit		23.905	56	23.851
Base	8 50	27.522	51.5	27.456
Summit		23.910	56	23.856
Base	8 51	27.523	56	27.456
Summit		23.910	56	23.856
Base	8 52	27.523	56	27.456
Summit		23.910	56	23.856
Base	8 53	27.522	56	27.455
Summit		23.913	56.5	23.858
Base	8 54	27.524	56	27.457
Summit		23.920	56.5	23.865
Base	8 55	27.522	56	27.455
Summit		23.913	56.5	23.858
Base	8 56	27.523	57	27.456
Summit		23.915	57	23.859
Base	8 57	27.524	58	27.457
Summit		23.910	57	23.854
Base	8 58	27.526	58	27.459
Summit		23.910	57	23.854
Base	8 59	27.523	58	27.456

NOTE.—Elevation of barometer at summit above sea-level, 6,325.4 feet. Elevation of barometer at base above sea-level, 2,808.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 7, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.					a. m.					a. m.			
Summit	8 0	24.063	49	24.024	Summit.	8 15	24.074	48	24.037	Summit.	8 30	24.075	50	24.034
Base		27.618	60	27.511	Base.		27.622	60	27.535	Base.		27.618	59	27.533
Summit	8 1	24.068	49	24.029	Summit	8 16	24.074	48	24.037	Summit.	8 31	24.075	50	24.034
Base		27.618	60	27.531	Base		27.621	60	27.534	Base.		27.619	59	27.534
Summit	8 2	24.068	49.5	24.028	Summit.	8 17	24.075	48.5	24.037	Summit.	8 32	24.078	50.5	24.036
Base		27.618	60	27.531	Base		27.622	60	27.535	Base.		27.619	59	27.534
Summit	8 3	24.069	50	24.028	Summit.	8 18	24.075	49	24.036	Summit.	8 33	24.079	50.5	24.037
Base		27.618	60	27.532	Base.		27.622	59.5	27.536	Base.		27.619	59	27.534
Summit	8 4	24.069	50	24.028	Summit.	8 19	24.075	49	24.036	Summit.	8 34	24.079	51	24.036
Base		27.619	60	27.532	Base.		27.623	59	27.538	Base.		27.617	59	27.532
Summit	8 5	24.069	50	24.028	Summit.	8 20	24.075	49	24.036	Summit.	8 35	24.075	51	24.032
Base		27.618	60	27.531	Base.		27.622	59	27.537	Base.		27.618	59	27.533
Summit	8 6	24.070	50	24.029	Summit.	8 21	24.075	49.5	24.035	Summit.	8 36	24.078	51	24.035
Base		27.619	60	27.532	Base.		27.622	59	27.537	Base.		27.618	59.5	27.532
Summit	8 7	24.070	50	24.029	Summit.	8 22	24.075	49.5	24.035	Summit.	8 37	24.078	51	24.035
Base		27.619	60	27.532	Base.		27.621	59	27.536	Base.		27.617	59.5	27.532
Summit	8 8	24.070	50	24.029	Summit.	8 23	24.075	50	24.034	Summit.	8 38	24.078	51	24.035
Base		27.619	60	27.532	Base.		27.623	59	27.538	Base.		27.617	58.5	27.531
Summit	8 9	24.069	49.5	24.029	Summit.	8 24	24.075	50	24.034	Summit.	8 39	24.078	51	24.035
Base		27.619	60	27.532	Base.		27.621	59	27.536	Base.		27.618	60	27.535
Summit	8 10	24.070	49	24.011	Summit.	8 25	24.075	50	24.031	Summit		24.078	51	24.035
Base		27.619	60	27.532	Base.		27.619	59	27.534	Base.		27.618	60	27.531
Summit	8 11	24.070	48	24.013	Summit.	8 26	24.075	50	24.034	Summit.	8 41	24.079	51.5	24.035
Base		27.621	60	27.534	Base.		27.619	59	27.534	Base.		27.618	60	27.531
Summit	8 12	24.070	48	24.033	Summit.	8 27	24.075	50	24.034	Summit.	8 42	24.079	51.5	24.035
Base		27.621	60	27.534	Base.		27.619	59	27.534	Base.		27.619	60	27.533
Summit	8 13	24.074	48	24.037	Summit.	8 28	24.075	50	24.034	Summit.	8 43	24.079	51.5	24.035
Base		27.621	60	27.534	Base.		27.619	59	27.534	Base.		27.619	60	27.532
Summit	8 14	24.074	48	24.037	Summit.	8 29	24.075	50	24.034	Summit.	8 44	24.079	51.5	24.035
Base		27.622	60	27.535	Base.		27.619	59	27.534	Base.		27.619	60	27.532

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.			
Summit.	8 45	24.084	51.5	24.040
Base		27.620	60	27.533
Summit.	8 46	24.084	52	24.039
Base		27.622	60	27.535
Summit.	8 47	24.084	52	24.039
Base		27.622	60.5	27.534
Summit.	8 48	24.084	52	24.039
Base		27.622	60.5	27.534
Summit.	8 49	24.083	52	24.039
Base		27.623	60.5	27.535
Summit.	8 50	24.081	52	24.036
Base		27.623	60.5	27.535
Summit.	8 51	24.081	52.5	24.035
Base		27.625	60.5	27.537
Summit.	8 52	24.081	52.5	24.035
Base		27.525	60.5	27.537
Summit.	8 53	24.081	53	24.034
Base		27.627	60.5	27.539
Summit.	8 54	24.084	53	24.037
Base		27.624	60.5	27.536
Summit.	8 55	24.084	53	24.037
Base		27.623	60.5	27.535
Summit.	8 56	24.084	53	24.037
Base		27.622	60.5	27.534
Summit.	8 57	24.084	53	24.037
Base		27.621	60.5	27.533
Summit.	8 58	24.085	53	24.038
Base		27.620	60.5	27.532
Summit.	8 59	24.045	53.5	24.037
Base		27.620	60.5	27.532

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 8, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.					a. m.					a. m.			
Summit	8 0	24.162	59	24.102	Summit	8 15	24.102	62	24.005	Summit	8 30	24.165	64	24.094
Base		27.625	58	27.542	Base		27.630	58.5	27.546	Base		27.697	59	27.542
Summit	8 1	24.162	59	24.102	Summit	8 16	24.162	62.5	24.094	Summit	8 31	24.165	64	24.094
Base		27.625	58.5	27.541	Base		27.630	58.5	27.546	Base		27.625	59	27.540
Summit	8 2	24.160	59	24.100	Summit	8 17	24.165	63	24.096	Summit	8 32	24.165	64	24.094
Base		27.625	58	27.542	Base		27.630	58	27.547	Base		27.628	59	27.543
Summit	8 3	24.160	59.5	24.099	Summit	8 18	24.165	63	24.096	Summit	8 33	24.165	64	24.094
Base		27.627	58	27.544	Base		27.630	58.5	27.546	Base		27.629	59.5	27.542
Summit	8 4	24.160	60	24.099	Summit	8 19	24.165	63	24.096	Summit	8 34	24.165	64	24.094
Base		27.627	59	27.542	Base		27.631	58.5	27.547	Base		27.628	60	27.541
Summit	8 5	24.160	60	24.098	Summit	8 20	24.165	63	24.096	Summit	8 35	24.168	64.5	24.096
Base		27.628	58	27.545	Base		27.630	58.5	24.005	Base		27.628	60	27.541
Summit	8 6	24.160	60	24.098	Summit	8 21	24.165	63.5	27.546	Summit	8 36	24.168	64.5	24.096
Base		27.624	58	27.545	Base		27.630	58	27.547	Base		27.629	60	27.542
Summit	8 7	24.160	60	24.099	Summit	8 22	24.165	64	24.094	Summit	8 37	24.168	64.5	24.096
Base		27.628	59	27.545	Base		27.630	58	27.547	Base		27.628	60	27.541
Summit	8 8	24.162	60.5	24.099	Summit	8 23	24.165	64	24.094	Summit	8 38	24.168	64.5	24.096
Base		27.628	58	27.545	Base		27.630	58.5	27.546	Base		27.629	60	27.543
Summit	8 9	24.162	61	24.098	Summit	8 24	24.165	64	24.094	Summit	8 39	24.168	64.5	24.096
Base		27.628	58.5	27.544	Base		27.630	58.5	24.094	Base		27.628	60	27.541
Summit	8 10	24.162	61.5	24.097	Summit	8 25	24.165	64	24.094	Summit	8 40	24.168	64.5	24.096
Base		27.628	58.5	27.544	Base		27.629	58	27.546	Base		27.630	60	27.543
Summit	8 11	24.163	61.5	24.097	Summit	8 26	24.165	64	24.094	Summit	8 41	24.168	64.5	24.096
Base		27.630	58	27.547	Base		27.629	58	27.546	Base		27.630	60.5	27.542
Summit	8 12	24.162	61.5	24.097	Summit	8 27	24.165	64	24.094	Summit	8 42	24.168	64.5	24.096
Base		27.630	58	27.547	Base		27.629	58.5	27.545	Base		27.630	60.5	27.542
Summit	8 13	24.164	62	24.095	Summit	8 28	24.165	64	24.094	Summit	8 43	24.168	64.5	24.096
Base		27.630	58	27.547	Base		27.630	58.5	27.542	Base		27.631	60.5	27.543
Summit	8 14	24.162	62	24.095	Summit	8 29	24.165	64	24.094	Summit	8 44	24.168	64.5	24.096
Base		27.630	58	27.547	Base		27.629	59	27.544	Base		27.629	60	27.543

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.			
Summit	8 45	24.171	64.5	24.099
Base		27.632	60	27.545
Summit	8 46	24.171	64.5	24.099
Base		27.632	60.5	27.544
Summit	8 47	24.171	64.5	24.099
Base		27.631	60.5	27.543
Summit	8 48	24.171	64.5	24.099
Base		27.632	61	27.543
Summit	8 49	24.171	64.5	24.099
Base		27.633	61	27.544
Summit	8 50	24.171	64.5	24.099
Base		27.633	61	27.544
Summit	8 51	27.631	64.5	24.099
Base		27.632	61	27.543
Summit	8 52	24.171	64.5	24.099
Base		27.633	61	27.544
Summit	8 53	24.171	64.5	24.099
Base		27.632	61	27.543
Summit	8 54	24.171	64.5	24.099
Base		27.632	61	27.543
Summit	8 55	24.171	64.5	24.099
Base		27.632	61	27.543
Summit	8 56	24.169	63	24.100
Base		27.633	61	27.544
Summit	8 57	24.170	63	24.101
Base		27.633	61	27.544
Summit	8 58	24.170	63	24.101
Base		27.633	61	27.544
Summit	8 59	24.170	61	24.105
Base		27.633		27.544

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,806.3 feet. Barometer readings corrected for temperature and instrumental error only.

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(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.					*a. m.*					*a. m.*					*a. m.*			
Summit	8 0	24.005	57	23.949	Summit.	8 15	23.990	52	23.945	Summit.	8 30	23.990	55	23.938	Summit.	8 45	24.000	61	23.935
Base...		27.488	55	27.413	Base....		27.489	56	27.412	Base....		27.490	56	27.413	Base....		27.489	55.5	27.413
Summit	8 1	24.005	57	23.949	Summit.	8 16	23.990	52	23.945	Summit.	8 31	23.990	56	23.936	Summit.	8 46	24.000	61.5	23.934
Base..		27.487	55	27.412	Base....		27.488	56	27.411	Base....		27.488	55.5	27.412	Base....		27.490	55.5	27.414
Summit	8 2	24.005	56.5	23.949	Summit	8 17	23.990	52	23.945	Summit.	8 32	23.990	56	23.936	Summit	8 47	24.000	61.5	23.934
Base...		27.487	55	27.412	Base...		27.488	56.5	27.410	Base....		27.489	55.5	27.413	Base....		27.489	55.5	27.413
Summit	8 3	24.000	56	23.946	Summit.	8 18	23.990	52	23.945	Summit	8 33	23.992	56.5	23.937	Summit.	8 48	24.000	61.5	23.934
Base...		27.486	55.5	27.410	Base....		27.489	56	27.412	Base....		27.489	56	27.412	Base....		27.488	55.5	27.412
Summit	8 4	24.000	56	23.946	Summit	8 19	23.990	51.5	23.946	Summit.	8 34	23.992	57	23.936	Summit.	8 49	24.002	61.5	23.936
Base...		27.489	55.5	27.413	Base....		27.489	56	27.412	Base....		27.487	56	27.410	Base....		27.488	55	27.414
Summit	8 5	24.000	55.5	23.947	Summit	8 20	23.990	51.5	23.946	Summit.	8 35	23.992	57.5	23.945	Summit.	8 50	24.003	61	23.938
Base...		27.489	55.5	27.413	Base....		27.489	56	27.412	Base....		27.488	56	27.411	Base....		27.488	55	27.414
Summit	8 6	24.000	55	23.948	Summit.	8 21	23.992	51	23.949	Summit.	8 36	23.992	58	23.934	Summit	8 51	24.005	61	23.940
Base...		27.488	55.5	27.412	Base....		27.488	56	27.411	Base....		27.488	56	27.411	Base....		27.487	55	27.413
Summit	8 7	24.000	54.5	23.949	Summit.	8 22	23.992	51	23.949	Summit.	8 37	23.993	58.5	23.934	Summit.	8 52	24.002	60.5	23.938
Base..		27.488	55.5	27.412	Base....		27.489	56	27.412	Base....		27.484	56	27.407	Base....		27.488	55	27.414
Summit	8 8	24.000	54	23.950	Summit.	8 23	23.990	51	23.947	Summit	8 38	23.995	59	23.935	Summit.	8 53	24.002	60	23.939
Base...		27.485	55.5	27.409	Base....		27.489	56	27.412	Base...		27.485	56	27.408	Base....		27.485	55	27.411
Summit	8 9	23.990	53	23.942	Summit	8 24	23.992	51	23.949	Summit	8 39	23.995	59.5	23.934	Summit	8 54	24.002	60	23.939
Base...		27.485	55.5	27.409	Base..		27.489	56	27.412	Base....		27.485	56	27.408	Base....		27.484	55	27.410
Summit	8 10	23.990	53	23.942	Summit.	8 25	23.992	52	23.947	Summit.	8 40	23.995	59.5	23.934	Summit.	8 55	24.002	60	23.939
Base...		27.485	56	27.408	Base....		27.490	56	27.413	Base...		27.487	56	27.410	Base....		27.490	55	27.416
Summit	8 11	23.990	53	23.942	Summit.	8 26	23.992	53	23.944	Summit	8 41	24.000	60	23.937	Summit.	8 56	24.002	60	23.939
Base...		27.488	56	27.411	Base....		27.490	56	27.413	Base....		27.490	56	27.413	Base....		27.488	55	27.414
Summit	8 12	23.990	52.5	23.943	Summit.	8 27	23.990	53	23.942	Summit.	8 42	24.000	60.5	23.936	Summit.	8 57	24.002	60	23.939
Base...		27.488	56	27.411	Base....		27.489	56	27.412	Base....		27.489	56	27.412	Base...		27.488	55.5	27.412
Summit	8 13	23.990	52.5	23.943	Summit.	8 28	23.990	54	23.940	Summit.	8 43	24.000	61	23.935	Summit.	8 58	24.002	60	23.939
Base...		27.488	56	27.411	Base....		27.490	56	27.413	Base....		27.490	56	27.413	Base....		27.489	55.5	27.413
Summit	8 14	23.990	52.5	23.943	Summit	8 29	23.990	54.5	23.939	Summit.	8 44	24.000	61	23.935	Summit.	8 59	24.002	60	23.939
Base...		27.489	56	27.412	Base....		27.490	56	27.413	Base....		27.489	55.5	27.413	Base....		27.488	55.5	27.412

NOTE.—Elevation of barometer at summit above sea-level, 6,225.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 10, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.			
Summit	8 0	23.842	57	23.786
Base		27.302	57.5	27.221
Summit	8 1	23.840	57	23.784
Base		27.302	57.5	27.221
Summit	8 2	23.840	58	23.782
Base		27.300	58	27.217
Summit	8 3	23.840	59	23.780
Base		27.301	58	27.218
Summit	8 4	23.840	59	23.780
Base		27.303	58	27.220
Summit	8 5	23.840	59.5	24.779
Base		27.300	58	27.217
Summit	8 6	23.840	59.5	23.779
Base		27.299	58	27.216
Summit	8 7	23.840	59.5	23.779
Base		27.307	58	27.224
Summit	8 8	23.845	59.5	23.784
Base		27.303	58	27.220
Summit	8 9	23.845	59.5	23.784
Base		27.303	58	27.220
Summit	8 10	23.845	59.5	23.784
Base		27.297	58	27.214
Summit	8 11	23.845	59.5	23.784
Base		27.306	59	27.223
Summit	8 12	23.848	59.5	23.787
Base		27.308	58	27.225
Summit	8 13	23.844	59.5	23.7-7
Base		27.299	59	27.210
Summit		23.848	59.5	23.787
Base	8 14	27.311	58	27.226
Summit		23.787	59.5	23.727
Base	8 15	27.227	58	27.221
Summit		23.793	59.5	23.733
Base	8 16	27.232	59	27.226
Summit	8 17	23.790	59	23.730
Base		27.229	58	27.222
Summit	8 18	23.790	59	23.730
Base		27.227	58	27.221
Summit	8 19	23.790	58.5	23.730
Base		27.239	58	27.232
Summit	8 20	23.794	58	23.734
Base		27.243	58	27.236
Summit	8 21	23.798	58	23.738
Base		27.247	58	27.240
Summit	8 22	23.797	58	23.737
Base		27.249	58	27.242
Summit	8 23	23.801	58	23.741
Base		27.251	58	27.244
Summit	8 24	23.801	58	23.741
Base		27.256	58	27.249
Summit	8 25	23.795	58.5	23.735
Base		27.255	58	27.248
Summit	8 26	23.791	58.5	23.731
Base		27.247	58	27.240
Summit	8 27	23.792	59	23.732
Base		27.249	59	27.242
Summit	8 28	23.795	59	23.735
Base		27.255	58	27.248
Summit		23.790	59	23.730
Base	8 29	27.237	59	27.230
Summit		23.790	59	23.730
Base	8 30	27.230	58	27.223
Summit		23.785	59	23.725
Base	8 31	27.227	58	27.220
Summit		23.790	58	23.730
Base		27.227	58	27.220
Summit	8 33	23.790	59	23.730
Base		27.219	58	27.212
Summit	8 34	23.790	59	23.730
Base		27.223	58	27.216
Summit	8 35	23.790	59	23.730
Base		27.223	58	27.216
Summit	8 36	23.796	58.5	23.736
Base		27.219	59	27.212
Summit	8 37	23.786	59	23.726
Base		27.226	58	27.219
Summit	8 38	23.787	58	23.727
Base		27.224	58	27.217
Summit	8 39	23.787	58	23.727
Base		27.220	58	27.213
Summit	8 40	23.782	58	23.722
Base		27.225	58	27.218
Summit	8 41	23.786	57.5	23.726
Base		27.229	58	27.222
Summit	8 42	23.789	57.5	23.729
Base		27.224	58	27.217
Summit	8 43	23.786	57.5	23.726
Base		27.219	59	27.212
Summit		23.786	57.5	23.726
Base	8 44	27.224	58	27.217
Summit		23.844	57.5	23.784
Base	8 45	27.308	58	27.225
Summit		23.844	57.5	23.784
Base	8 46	27.301	58	27.218
Summit	8 47	23.844	57.5	23.784
Base		27.313	58	27.226
Summit	8 48	23.844	57.5	23.784
Base		27.307	58	27.224
Summit	8 49	23.844	57.5	23.784
Base		27.319	57.5	27.237
Summit	8 50	23.848	57.5	23.788
Base		27.309	57.5	27.227
Summit	8 51	23.839	57.5	23.781
Base		27.314	57.5	27.232
Summit	8 52	23.841	57.5	23.783
Base		27.323	57.5	27.241
Summit	8 53	23.841	57	23.784
Base		27.309	57.5	27.227
Summit	8 54	23.845	57	23.789
Base		27.303	57.5	27.220
Summit	8 55	23.846	56.5	23.790
Base		27.319	57.5	27.237
Summit	8 56	23.846	56	23.791
Base		27.310	57.5	27.228
Summit	8 57	23.846	56	23.791
Base		27.308	57.5	27.226
Summit	8 58	23.846	56	23.791
Base		27.300	57.5	27.218
Summit	8 59	23.846	56	23.791
Base		27.313	58	27.230

NOTE.—Elevation of barometer at summit above sea-level, 6,945.4 feet. Elevation of barometer at base above sea-level, 2,892.3 feet. Barometer readings corrected for temperature and instrumental error only.

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(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					*p. m.*					*p. m.*					*p. m.*			
Summit	2 0	23.755	65	23.682	Summit	2 15	23.760	71	23.673	Summit	2 30	23.762	73	23.672	Summit	2 45	23.760	70	23.676
Base		27.150	65	27.052	Base		27.144	65	27.046	Base		27.149	63.5	27.054	Base		27.130	62.5	27.038
Summit	2 1	23.755	65.5	23.681	Summit	2 16	23.760	71	23.673	Summit	2 31	23.762	73	23.672	Summit	2 46	23.752	69	23.670
Base		.....	.....	.....	Base		27.146	65	27.048	Base		27.143	63.5	27.048	Base		27.129	62.5	27.037
Summit	2 2	23.755	66	23.680	Summit	2 17	23.760	71.5	23.672	Summit	2 32	23.768	73	23.678	Summit	2 47	23.745	68	23.665
Base		.....	.....	.....	Base		27.148	65	27.051	Base		27.136	63.5	27.041	Base		27.131	62.5	27.039
Summit	2 3	23.755	66.5	23.679	Summit	2 18	23.763	71.5	23.675	Summit	2 33	23.775	73	23.685	Summit	2 48	23.740	68	23.660
Base		.....	.....	.....	Base		27.144	64.5	27.047	Base		27.133	63.5	27.038	Base		27.132	62.5	27.040
Summit	2 4	23.753	66.5	23.677	Summit	2 19	23.763	72	23.674	Summit	2 34	23.780	73	23.690	Summit	2 49	23.738	67.5	23.659
Base		.....	.....	.....	Base		27.142	64	27.046	Base		27.133	63.5	27.038	Base		27.132	62.5	27.040
Summit	2 5	23.755	67	23.678	Summit	2 20	23.765	72	23.676	Summit	2 35	23.782	73	23.692	Summit	2 50	23.730	67	23.652
Base		27.152	65	27.054	Base		27.140	64	27.044	Base		27.134	63	27.041	Base		27.133	62.5	27.041
Summit	2 6	23.758	68	23.678	Summit	2 21	23.768	72	23.679	Summit	2 36	23.780	73	23.690	Summit	2 51	23.720	66.5	23.643
Base		27.152	65	27.054	Base		27.138	64	27.042	Base		27.133	63	27.040	Base		27.137	62.5	27.045
Summit	2 7	23.755	68	23.675	Summit	2 22	23.762	72	23.673	Summit	2 37	23.772	73	23.682	Summit	2 52	23.720	65.5	23.645
Base		27.148	65	27.050	Base		27.140	64	27.044	Base		27.131	63	27.038	Base		27.139	62.5	27.047
Summit	2 8	23.755	69	23.673	Summit	2 23	23.763	72	23.674	Summit	2 38	23.778	73	23.688	Summit	2 53	23.720	65	23.646
Base		27.148	65	27.050	Base		27.138	64	27.042	Base		27.129	63	27.036	Base		27.134	62.5	27.042
Summit	2 9	23.760	69.5	23.677	Summit	2 24	23.763	72.5	23.673	Summit	2 39	23.770	73.5	23.679	Summit	2 54	23.715	64	23.643
Base		27.151	65	27.053	Base		27.140	64	27.044	Base		27.132	63	27.039	Base		27.132	62.5	27.040
Summit	2 10	23.760	69.5	23.676	Summit	2 25	23.760	72.5	23.670	Summit	2 40	23.770	73.5	23.679	Summit	2 55	23.710	63	23.640
Base		27.147	65	27.049	Base		27.140	64	27.044	Base		27.131	63	27.038	Base		27.130	62.5	22.038
Summit	2 11	23.758	70	23.673	Summit	2 26	23.760	73	23.670	Summit	2 41	23.765	73	23.675	Summit	2 56	23.700	63.5	23.630
Base		27.149	65	27.051	Base		27.142	64	27.046	Base		27.130	62.5	27.038	Base		27.124	62.5	77.032
Summit	2 12	23.758	70	23.673	Summit	2 27	23.760	73	23.670	Summit	2 42	23.760	72	23.672	Summit	2 57	23.700	64	23.629
Base		27.149	65	27.051	Base		27.142	64	27.046	Base		27.132	62.5	27.040	Base		27.121	62.5	27.029
Summit	2 13	23.760	70.5	23.674	Summit	2 28	23.760	73	23.670	Summit	2 43	23.752	71	23.666	Summit	2 58	23.705	64	23.634
Base		27.147	65	27.049	Base		27.144	63.5	27.049	Base		27.136	62.5	27.044	Base		27.115	62.5	27.023
Summit	2 14	23.760	71	23.673	Summit	2 29	23.760	73	23.670	Summit	2 44	23.752	70	23.668	Summit	2 59	23.705	64	23.634
Base		27.144	65	27.046	Base		27.150	63.5	27.055	Base		27.134	62.5	27.042	Base		27.110	62.5	27.018

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 12, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					p. m.					p. m.			
Summit	2 0	23.484	50	23.444	Summit	2 15	23.490	54.5	23.440	Summit	2 30	23.490	58.5	23.432
Base		26.959	64	26.863	Base		26.958	64.5	26.861	Base		26.956	64	26.860
Summit	2 1	23.482	51	23.440	Summit	2 16	23.488	55	23.437	Summit	2 31	23.490	58.5	23.432
Base		26.959	64	26.863	Base		26.959	64.5	26.862	Base		26.956	64	26.860
Summit	2 2	23.482	51.5	23.439	Summit	2 17	23.488	55	23.437	Summit	2 32	23.490	59	23.431
Base		26.958	64	26.862	Base		26.958	64	26.862	Base		26.956	64	26.860
Summit	2 3	23.485	52	23.441	Summit	2 18	23.488	55	23.437	Summit	2 33	23.490	59	23.431
Base		26.958	63.5	26.863	Base		26.958	64	26.862	Base		26.956	64	26.860
Summit	2 4	23.485	53	23.439	Summit	2 19	23.490	55.5	23.438	Summit	2 34	23.492	59.5	23.432
Base		26.960	63.5	26.865	Base		26.959	64	26.863	Base		26.954	64	26.858
Summit	2 5	23.481	53	23.436	Summit	2 20	23.490	56	23.437	Summit	2 35	23.490	58.5	23.430
Base		26.960	63.5	26.865	Base		26.958	64	26.862	Base		26.953	64	26.857
Summit	2 6	23.482	53	23.436	Summit	2 21	23.490	56	23.437	Base	2 36	23.490	64	23.420
Base		26.959	63.5	26.864	Base		26.958	64	26.862	Base		26.953	64	26.857
Summit	2 7	23.484	53.5	23.437	Summit	2 22	23.485	56	23.432	Summit	2 37	23.495	61	23.432
Base		26.958	64	26.862	Base		26.958	64	26.863	Base		26.953	64	26.857
Summit	2 8	23.486	54	23.439	Summit	2 23	23.487	56.5	23.433	Summit	2 38	23.496	61.5	23.432
Base		26.959	64	26.863	Base		26.960	64	26.864	Base		26.953	64	26.857
Summit	2 9	23.486	54	23.438	Summit	2 24	23.487	56.5	23.433	Summit	2 39	23.494	62	23.429
Base		26.958	64	26.862	Base		26.959	64	26.863	Base		26.953	64	26.857
Summit	2 10	23.490	54	23.442	Summit	2 25	23.487	56.5	23.433	Summit	2 40	23.490	63	23.420
Base		26.957	64	26.861	Base		26.958	64	26.862	Base		26.953	64	26.857
Summit	2 11	23.490	54	23.442	Summit	2 26	23.486	57	23.431	Summit	2 41	23.494	63	23.427
Base		26.958	64.5	26.861	Base		26.957	64	26.861	Base		26.953	64	26.857
Summit	2 12	23.490	54	23.441	Summit	2 27	23.486	57	23.431	Summit	2 42	23.490	63	23.423
Base		26.954	64.5	26.857	Base		26.957	64	26.861	Base		26.953	64	26.857
Summit	2 13	23.495	54	23.446	Summit	2 28	23.486	57.5	23.430	Summit	2 43	23.490	63	23.423
Base		26.957	64.5	26.860	Base		26.957	64	26.861	Base		26.955	63.5	26.860
Summit	2 14	23.495	54	23.446	Summit	2 29	23.490	58	23.433	Summit	2 44	23.495	61	23.426
Base		26.958	64.5	26.861	Base		26.955	64	26.859	Base		26.953	63.5	26.858

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Summit	2 45	23.490	63.5	23.432
Base		26.955	63.5	26.860
Summit	2 46	23.490	64	23.432
Base		26.956	63.5	26.860
Summit	2 47	23.490	64	23.426
Base		26.954	63.5	26.859
Summit		23.490	64	23.420
Base	2 48	26.953	63.5	26.858
Summit		23.490	64	23.426
Base	2 49	26.954	63.5	26.859
Summit		23.490	64	23.420
Base	2 50	26.953	63.5	26.858
Summit		23.490	64	23.420
Base	2 51	26.953	63.5	26.858
Summit		23.496	64.5	23.415
Base	2 52	26.953	63.5	26.858
Summit		23.496	64.5	23.415
Base	2 53	26.956	63.5	26.861
Summit		23.490	64.5	23.419
Base	2 54	26.953	64	26.857
Summit		23.488	64.5	23.417
Base	2 55	26.951	64	26.855
Summit		23.488	64	23.418
Base	2 56	26.953	64	26.857
Summit		23.492	63.5	23.423
Base	2 57	26.953	64	26.857
Summit		23.492	63	23.415
Base	2 58	26.953	64	26.857
Summit		23.490	63	23.423
Base	2 59	26.953	64	26.857

NOTE.—Elevation of barometer at summit above sea-level, 9,285.4 feet. Elevation of barometer at base above sea-level, 2,692.3 feet. Barometer readings corrected for temperature and instrumental error only.

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(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					*p. m.*					*p. m.*					*p. m.*			
Summit	2 0	23.340	57.5	23.284	Summit.	2 15	23.338	56.5	23.284	Summit.	2 30	23.325	56	23.272	Summit.	2 45	23.329	58	23.272
Base		26.741	61	26.654	Base		26.743	62	26.654	Base		26.744	63	26.653	Base		26.748	62.5	26.658
Summit	2 1	23.340	57.5	23.284	Summit.	2 16	23.338	56.5	23.284	Summit.	2 31	23.325	56	23.272	Summit.	2 46	23.320	58	23.272
Base		26.741	61	26.654	Base		26.743	62	26.654	Base		26.747	63	26.656	Base		26.742	62.5	26.652
Summit	2 2	23.340	57.5	23.284	Summit.	2 17	23.343	56	23.280	Summit.	2 32	23.325	56	23.272	Summit	2 47	23.329	58	23.272
Base		26.740	61.5	26.652	Base		26.743	62	26.654	Base		26.748	63	26.657	Base		26.742	62.5	26.652
Summit	2 3	23.341	57.5	23.285	Summit.	2 18	23.329	56	23.276	Summit.	2 33	23.330	56.5	23.276	Summit.	2 48	23.328	58.5	23.270
Base		26.739	61.5	26.651	Base		26.742	62	26.653	Base		26.747	63	26.656	Base		26.749	62.5	26.659
Summit	2 4	23.341	57	23.286	Summit.	2 19	23.329	56	23.276	Summit.	2 34	23.330	57	23.275	Summit.	2 49	23.325	58.5	23.267
Base		26.741	61.5	26.653	Base		26.741	62.5	26.651	Base		26.748	63	26.657	Base		26.749	62.5	26.659
Summit	2 5	23.340	57	23.285	Summit.	2 20	23.331	56	23.278	Summit.	2 35	23.322	57	23.267	Summit.	2 50	23.325	58.5	23.267
Base		26.741	61.5	26.653	Base		26.741	62.5	26.651	Base		26.748	63	26.657	Base		26.750	62.5	26.660
Summit	2 6	23.340	57	23.285	Summit.	2 21	23.330	56	23.277	Summit.	2 36	23.321	57.5	23.265	Summit.	2 51	23.315	58.5	23.257
Base		26.741	62	26.652	Base		26.740	62.5	26.650	Base		26.747	63	26.656	Base		26.750	62.5	26.660
Summit	2 7	23.339	57	23.284	Summit.	2 22	23.328	56	23.275	Summit.	2 37	23.330	57.5	23.274	Summit	2 52	23.310	58.5	23.252
Base		26.739	62	26.650	Base		26.741	62.5	26.651	Base		26.748	62.5	26.658	Base		26,750	62	26.661
Summit	2 8	23.339	57	23.284	Summit	2 23	23.331	56	23.278	Summit.	2 38	23.328	57.5	23.272	Summit.	2 53	23.307	58.5	23.249
Base		26.738	62	26.649	Base		26.741	63	26.650	Base		26.748	63	26.657	Base		26.750	62	26.661
Summit	2 9	23.339	57	23.284	Summit.	2 24	23.331	56	23.278	Summit.	2 39	23.331	58	23.274	Summit.	2 54	23.305	58.5	23.247
Base		26.740	62	26.651	Base		26.742	63	26.651	Base		26.745	63	26.654	Base		26.748	62.5	26.658
Summit	2 10	23.339	57	23.284	Summit.	2 25	23.337	56	23.284	Summit.	2 40	23.330	58	23.273	Summit.	2 55	23.305	58.5	23.247
Base		26.742	62	26.653	Base		26.741	63	26.650	Base		26.747	62.5	26.657	Base		26.747	62.5	26.657
Summit	2 11	23.338	57	23.283	Summit.	2 26	23.335	56	23.282	Summit.	2 41	23.330	58	23.273	Summit.	2 56	23.310	58.5	23.252
Base		26.742	62	26.653	Base		26.741	63	26.650	Base		26.747	63	26.656	Base		26.747	62.5	26.657
Summit	2 12	23.338	57	23.283	Summit.	2 27	23.315	56	23.282	Summit	2 42	23.329	58	23.272	Summit.	2 57	23.320	59	23.261
Base		26.744	62	26.655	Base		26.741	63	26.650	Base		26.746	63	26.655	Base		26.745	62.5	26.655
Summit	2 13	23.338	57	23.283	Summit.	2 28	23.335	56	23.282	Summit.	2 43	23.329	58	23.272	Summit.	2 58	23.312	59	23.253
Base		26.743	62	26.654	Base		26.741	63	26.650	Base		26.746	62.5	26.656	Base		26.745	62.5	26.655
Summit	2 14	23.338	57	23.283	Summit.	2 29	23.328	56	23.275	Summit.	2 44	23.329	58	23.272	Summit	2 59	23.308	59	23.249
Base		26.744	62	26.655	Base		26.741	62.5	26.651	Base		26.744	62.5	26.654	Base		26.743	63	26.652

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 14, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					*p. m.*					*p. m.*					*p. m.*			
Summit	2 0	23.288	60	23.227	Summit.	2 15	23.285	58.5	23.227	Summit.	2 30	23.265	58	23.208	Summit.	2 45	23.278	55.5	23.220
Base		26.841	50	26.779	Base		26.846	50	26.784	Base		26.843	50	26.781	Base		26.847	49	26.787
Summit	2 1	23.292	60	23.231	Summit.	2 16	23.295	58	23.238	Summit.	2 31	23.265	58	23.208	Summit.	2 46	23.288	55.5	23.236
Base		26.841	50	26.779	Base		26.843	50	26.781	Base		26.841	50	26.779	Base		26.845	49.5	26.784
Summit	2 2	23.305	60	23.244	Summit.	2 17	23.300	58	23.243	Summit.	2 32	23.265	57.5	23.208	Summit.	2 47	23.288	55.5	23.236
Base		26.840	50	26.778	Base		26.847	50	26.785	Base		26.841	50	26.779	Base		26.844	49.5	26.783
Summit	2 3	23.300	60	23.239	Summit.	2 18	23.295	58	23.238	Summit.	2 33	23.270	57.5	23.214	Summit.	2 48	23.284	55.5	23.232
Base		26.841	50	26.779	Base		26.842	50	26.780	Base		26.843	49.5	26.782	Base		26.845	49	26.785
Summit	2 4	23.303	60	23.242	Summit.	2 19	23.295	58	23.238	Summit.	2 34	23.270	57	23.215	Summit.	2 49	23.284	55	23.233
Base		26.841	50	26.779	Base		26.847	50	26.785	Base		26.842	49.5	26.781	Base		26.843	49	26.783
Summit	2 5	23.313	59.5	23.253	Summit.	2 20	23.280	58	23.223	Summit.	2 35	23.270	57	23.215	Summit.	2 50	23.284	55	23.233
Base		26.846	50	26.784	Base		26.848	50	26.786	Base		26.847	49.5	26.786	Base		26.843	49	26.783
Summit	2 6	23.314	59.5	23.254	Summit.	2 21	23.270	58	23.213	Summit.	2 36	23.265	57	23.210	Summit.	2 51	23.286	55	23.225
Base		26.842	50	26.780	Base		26.848	50	26.784	Base		26.842	49.5	26.781	Base		26.843	49	26.783
Summit	2 7	23.302	59	23.243	Summit.	2 22	23.282	58	23.225	Summit.	2 37	23.265	57	23.210	Summit.	2 52	23.290	55	23.239
Base		26.843	50	26.781	Base		26.844	50	26.782	Base		26.847	49.5	26.786	Base		26.844	49	26.784
Summit	2 8	23.303	59	23.244	Summit.	2 23	23.280	58	23.223	Summit.	2 38	23.270	56.5	23.216	Summit.	2 53	23.290	55	23.239
Base		26.843	50	26.781	Base		26.848	50	26.786	Base		26.847	49.5	26.786	Base		26.841	49	26.781
Summit	2 9	23.308	59	23.249	Summit.	2 24	23.275	58	23.218	Summit.	2 39	23.270	56.5	23.216	Summit.	2 54	23.290	55	23.239
Base		26.845	50	26.783	Base		26.846	50	26.784	Base		26.842	49.5	26.781	Base		26.840	49	26.780
Summit	2 10	23.300	59	23.241	Summit.	2 25	23.250	58	23.193	Summit.	2 40	23.272	56.5	23.218	Summit.	2 55	23.284	55	23.233
Base		26.842	50	26.780	Base		26.847	50	26.785	Base		26.846	49	26.786	Base		26.841	49	26.781
Summit	2 11	23.300	59	23.241	Summit	2 26	23.264	58	23.207	Summit.	2 41	23.265	56	23.212	Summit.	2 56	23.283	55	23.232
Base		26.843	50	26.781	Base		26.846	50	26.784	Base		26.845	49	26.785	Base		26.841	49	26.781
Summit	2 12	23.300	59	23.241	Summit.	2 27	23.278	58	23.221	Summit.	2 42	23.272	56	23.219	Summit.	2 57	23.278	55	23.227
Base		26.842	50	26.780	Base		26.845	50	26.783	Base		26.845	49	26.785	Base		26.840	49	26.780
Summit	2 13	23.300	59	23.241	Summit.	2 28	23.268	58	23.211	Summit.	2 43	23.284	56	23.211	Summit.	2 58	23.300	55	23.249
Base		26.841	50	26.779	Base		26.843	50	26.781	Base		26.844	49	26.784	Base		26.841	49	26.781
Summit	2 14	23.300	58.5	23.242	Summit	2 29	23.264	58	23.207	Summit.	2 44	23.280	56	23.227	Summit.	2 59	23.298	54.5	23.248
Base		26.842	50	26.780	Base		26.841	50	26.779	Base		26.849	49	26.789	Base		26.841	49	26.781

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 15, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					p. m.					p. m.			
Summit	2 0	23.492	61	23.429	Summit.	2 15	23.505	61	23.442	Summit.	2 30	23.516	61	23.453
Base	26.999	23.492	55.5	26.924	Base	27.002	23.510	56	26.936	Base	27.002	23.516	56	26.936
Summit	2 1	23.492	61	23.429	Summit.	2 16	23.510	61	23.447	Summit.	2 31	23.516	61	23.453
Base	26.998	23.493	55.5	26.923	Base	27.003	23.510	56	26.927	Base	27.001	23.520	56	26.925
Summit	2 2	23.493	61	23.430	Summit.	2 17	23.510	61	23.447	Summit.	2 32	23.520	61	23.457
Base	26.997	23.493	56	26.921	Base	27.003	23.510	56	26.927	Base	27.001	23.520	56	26.925
Summit	2 3	23.493	61	23.430	Summit.	2 18	23.513	56.5	26.926	Summit.	2 33	23.519	56	23.456
Base	26.997	23.493	56	26.921	Base	27.003	23.517	56.5	26.926	Base	27.003	23.519	56	26.927
Summit	2 4	23.493	61	23.430	Summit.	2 19	23.517	61	23.454	Summit.	2 34	23.519	56	23.456
Base	26.997	23.500	56	26.921	Base	27.003	23.515	56.5	26.926	Base	27.002	23.517	56	26.926
Summit	2 5	23.500	62	23.435	Summit.	2 20	23.515	61	23.452	Summit.	2 35	23.517	56	23.455
Base	26.999	23.498	56	26.923	Base	27.002	23.515	56.5	26.925	Base	27.001	23.520	56	26.925
Summit	2 6	23.498	62	23.433	Summit.	2 21	23.515	61	26.925	Summit.	2 36	23.520	56	23.458
Base	26.999	23.500	56	26.923	Base	27.003	23.515	56.5	26.925	Base	27.001	23.519	56	26.925
Summit	2 7	23.500	61.5	23.436	Summit.	2 22	23.515	61	23.452	Summit.	2 37	23.519	60	23.457
Base	26.999	23.500	56	26.923	Base	27.001	23.515	56.5	26.924	Base	27.001	23.519	56	26.925
Summit	2 8	23.500	61	23.437	Summit.	2 23	23.515	61	23.452	Summit.	2 38	23.519	60	23.457
Base	26.999	23.500	56	26.923	Base	27.002	23.515	56.5	26.925	Base	27.000	23.519	56	26.924
Summit	2 9	23.505	61	23.442	Summit	2 24	23.519	61	23.456	Summit.	2 39	23.519	60	23.457
Base	27.000	23.504	56	26.924	Base	27.002	23.518	56.5	26.925	Base	27.000	23.515	56	26.924
Summit	2 10	23.505	61	23.442	Summit.	2 25	23.518	61	23.455	Summit.	2 40	23.518	56	23.453
Base	26.999	23.505	56	26.923	Base	27.003	23.518	56.5	26.926	Base	27.001	23.515	56	26.925
Summit	2 11	23.505	61	23.442	Summit.	2 26	23.518	61	23.455	Summit.	2 41	23.515	56	23.453
Base	27.000	23.505	56	26.924	Base	27.002	23.518	56.5	26.925	Base	27.001	23.515	55.5	26.926
Summit	2 12	23.505	61	23.442	Summit	2 27	23.517	61	23.454	Summit.	2 42	23.518	60	23.456
Base	27.000	23.505	56	26.923	Base	27.002	23.516	56	26.926	Base	27.002	23.518	55.5	26.927
Summit	2 13	23.505	61	23.442	Summit	2 28	23.516	61	23.453	Summit.	2 43	23.518	60.5	23.455
Base	27.000	23.504	56	26.924	Base	27.001	23.516	56	26.925	Base	27.002	23.518	55.5	26.927
Summit	2 14	23.505	61	23.442	Summit	2 29	23.516	61	23.453	Summit.	2 44	23.518	60.5	23.455
Base	27.001	23.505	56	26.925	Base	27.001	23.516	56	26.925	Base	27.002	23.518	55.5	26.927

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,696.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 16, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					*p. m.*					*p. m.*					*p. m.*			
Summit	2 0	23.630	57	23.575	Summit.	2 15	23.619	55.5	23.567	Summit.	2 30	23.610	53	23.563	Summit.	2 45	23.614	59	23.555
Base		27.077	57	26.998	Base		27.075	57	26.996	Base		27.078	56	27.001	Base		27.077	56	27.000
Summit	2 1	23.620	56	23.567	Summit.	2 16	23.620	56	23.567	Summit.	2 31	23.612	53	23.565	Summit.	2 46	23.615	59.5	23.555
Base		27.074	56.5	26.996	Base		27.075	56.5	26.997	Base		27.078	56	27.001	Base		27.077	56	27.000
Summit	2 2	23.620	56	23.567	Summit.	2 17	23.620	56	23.567	Summit.	2 32	23.612	53.5	23.564	Summit.	2 47	23.619	60	23.558
Base		27.074	56.5	26.996	Base		27.075	56.5	26.997	Base		27.076	56.5	26.998	Base		27.077	55.5	27.001
Summit	2 3	23.620	56	23.567	Summit.	2 18	23.620	56	23.567	Summit.	2 33	23.612	53.5	23.564	Summit.	2 48	23.618	60.5	23.557
Base		27.076	57	26.997	Base		27.076	56.5	26.998	Base		27.075	56	26.998	Base		27.075	56	26.998
Summit	2 4	23.620	57	23.565	Summit	2 19	23.618	56	23.565	Summit.	2 34	23.610	53.5	23.562	Summit.	2 49	23.615	61	23.552
Base		27.073	56.5	26.995	Base		27.075	56	26.998	Base		27.075	56	26.998	Base		27.075	55.5	26.999
Summit	2 5	23.620	56	23.567	Summit.	2 20	23.615	56	23.562	Summit.	2 35	23.611	53.5	23.563	Summit.	2 50	23.618	61	23.555
Base		27.075	56.5	26.997	Base		27.077	56	27.000	Base		27.078	56	27.001	Base		27.078	55	27.003
Summit	2 6	23.619	56	23.566	Summit.	2 21	23.615	55.5	23.563	Summit.	2 36	23.611	54	23.562	Summit.	2 51	23.620	62	23.555
Base		27.075	56.5	26.997	Base		27.077	56	27.000	Base		27.075	56	26.998	Base		27.073	55.5	26.997
Summit	2 7	23.620	56	23.567	Summit.	2 22	23.614	55.5	23.562	Summit.	2 37	23.612	54	23.563	Summit.	2 52	23.620	62	23.555
Base		27.073	56.5	26.995	Base		27.075	56.5	26.997	Base		27.075	56	26.998	Base		27.073	55.5	26.997
Summit	2 8	23.620	56	23.567	Summit.	2 23	23.616	55	23.565	Summit.	2 38	23.610	54	23.561	Summit.	2 53	23.620	62.5	23.554
Base		27.073	56.5	26.995	Base		27.073	56	26.996	Base		27.075	56	26.998	Base		27.073	56	26.996
Summit	2 9	23.620	56	23.567	Summit.	2 24	23.616	55	23.565	Summit	2 39	23.610	55	23.559	Summit.	2 54	23.620	62.5	23.554
Base		27.073	56.5	26.995	Base		27.073	56	26.996	Base		27.077	56	27.000	Base		27.073	55.5	26.997
Summit	2 10	23.617	55.5	23.564	Summit.	2 25	23.616	55	23.565	Summit	2 40	23.614	56	23.561	Summit.	2 55	23.621	63	23.554
Base		27.074	56.5	26.996	Base		27.074	56	26.997	Base		27.078	55.5	27.002	Base		27.073	55.5	26.997
Summit	2 11	23.620	56	23.567	Summit.	2 26	23.618	53.5	23.570	Summit.	2 41	23.614	57.5	23.558	Summit.	2 56	23.620	63	23.553
Base		27.075	57	26.996	Base		27.075	56	26.998	Base		27.078	55.5	27.002	Base		27.072	55.5	26.996
Summit	2 12	23.620	56	23.567	Summit.	2 27	23.615	53	23.568	Summit.	2 42	23.614	58	23.557	Summit.	2 57	23.620	63	23.553
Base		27.075	57	26.996	Base		27.075	56	26.998	Base		27.075	55.5	26.999	Base		27.074	56	26.997
Summit	2 13	23.618	55	23.567	Summit.	2 28	23.614	53	23.567	Summit.	2 43	23.610	58	23.553	Summit.	2 58	24.625	63.5	23.557
Base		27.073	56.5	26.995	Base		27.073	56	26.996	Base		27.073	55.5	26.997	Base		27.074	56	26.997
Summit	2 14	23.618	55.5	23.566	Summit.	2 29	23.614	53	23.567	Summit.	2 44	23.614	58.5	23.556	Summit.	2 59	23.626	63.5	23.558
Base		27.076	57	26.999	Base		27.076	56	26.999	Base		27.075	55.5	26.999	Base		27.073	56	26.996

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 17, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					p. m.					p. m.					p. m.			
Summit	2 0	23.618	64.5	23.547	Summit.	2 15	23.639	66.5	23.564	Summit	2 30	23.622	67.5	23.545	Summit	2 45	23.630	68	23.552
Base...		27.083	52	27.016	Base...		27.062	53	27.013	Base....		27.093	54	27.021	Base....		27.091	54.5	27.018
Summit	2 1	23.621	64.5	23.550	Summit.	2 16	23.639	66.5	23.564	Summit	2 31	23.630	67.5	23.553	Summit.	2 46	23.630	68	23.552
Base...		27.085	52.5	27.017	Base...		27.082	53	27.013	Base....		27.093	54	27.021	Base....		27.092	54.5	27.019
Summit	2 2	23.621	65	23.549	Summit	2 17	23.639	66.5	23.564	Summit.	2 32	23.623	67.5	23.546	Summit.	2 47	23 619	68	23.541
Base...		27.083	52.5	27.015	Base....		27.083	53	27.014	Base...		27.095	54	27.023	Base....		27.091	54.5	27.018
Summit	2 3	23.621	65.5	23.548	Summit.	2 18	23.639	67	23.563	Summit	2 33	23.620	67.5	23.543	Summit.	2 48	23.631	68	23.553
Base...		27.083	52	27.016	Base....		27.083	53	27.014	Base....		27.097	54.5	27.024	Base....		27.092	55	27.018
Summit	2 4	23.622	65.5	23.549	Summit.	2 19	23.634	67	23.558	Summit.	2 34	23.625	67.5	23.548	Summit.	2 49	23.635	68	23.557
Base...		27.081	52	27.014	Base....		27.084	53	27.015	Base....		27.097	54.5	27.024	Base....		27.091	55	27.017
Summit	2 5	23.622	66	23.548	Summit.	2 20	23.634	67	23.558	Summit.	2 35	23.620	67.5	23.543	Summit.	2 50	23.640	68	23.562
Base...		27.081	52	27.014	Base....		27.086	53	27.017	Base....		27.095	54.5	27.022	Base....		27.091	55	27.017
Summit	2 6	23.629	66	23.555	Summit.	2 21	23.634	67.5	23.557	Summit.	2 36	23.620	68	23.542	Summit.	2 51	23.640	68	23.562
Base...		27.081	52	27.014	Base....		27.088	53.5	27.018	Base....		27.095	54	27.023	Base....		27.091	55	27.017
Summit	2 7	23.629	66	23.555	Summit.	2 22	23.634	67.5	23.557	Summit.	2 37	23.615	68	23.537	Summit.	2 52	23.635	68	23.557
Base...		27.080	52	27.013	Base....		27.089	54	27.017	Base....		27.096	54	27.024	Base....		27.091	55	27.017
Summit	2 8	23.629	66.5	23.554	Summit.	2 23	23.635	67.5	23.558	Summit	2 38	23.624	68	23.546	Summit.	2 53	23.635	68	23.557
Base...		27.082	52	27.015	Base....		27.088	54	27.016	Base....		27.095	54	27.023	Base....		27.090	55	27.016
Summit	2 9	23.629	66.5	23.554	Summit.	2 24	23.635	67.5	23.558	Summit.	2 39	23.620	68	23.542	Summit.	2 54	23.638	68	23.560
Base...		27.082	52.5	27.014	Base....		27.091	54	27.019	Base....		27.093	54	27.021	Base ...		27.092	55	27.018
Summit	2 10	23.629	66.5	23.554	Summit.	2 25	23.630	67.5	23.553	Summit.	2 40	23.617	68	23.539	Summit.	2 55	23.638	68	23.560
Base...		27.083	52.5	27.015	Base....		27.090	54	27.018	Base....		27.093	54	27.021	Base....		27.092	55	27.018
Summit	2 11	23.629	66.5	23.554	Summit.	2 26	23.630	67.5	23.553	Summit.	2 41	23.622	68	23.544	Summit.	2 56	23.641	68	23.563
Base...		27.082	53	27.013	Base....		27.092	54	27.020	Base....		27.093	54.5	27.020	Base....		27.091	55	27.017
Summit	2 12	23.629	66.5	23.554	Summit.	2 27	23.629	67.5	23.552	Summit.	2 42	23.620	68	23.542	Summit.	2 57	23.641	68	23.563
Base...		27.082	53	27.013	Base....		27.094	54	27.022	Base....		27.092	54.5	27.019	Base....		27.091	55	27.017
Summit	2 13	23.635	66.5	23.560	Summit.	2 28	23.629	67.5	23.552	Summit.	2 43	23.620	68	23.542	Summit.	2 58	23.641	68	23.563
Base...		27.080	53	27.011	Base....		27.093	54	27.021	Base....		27.091	54.5	27.018	Base....		27.091	55	27.017
Summit	2 14	23.635	66.5	23.560	Summit.	2 29	23.622	67.5	23.545	Summit.	2 44	23.620	68	23.542	Summit.	2 59	23.640	68	23.562
Base...		27.081	53	27.012	Base....		27.095	54	27.023	Base....		27.093	54.5	27.020	Base....		27.089	55	27.015

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 18, 1873.
(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Summit	2 0	23.690	61.5	23.626
Base		27.103	53	27.094
Summit		23.695	61.5	23.631
Base	2 1	27.103	53	27.094
Summit		23.694	61.5	23.631
Base	2 2	27.104	53.5	27.094
Summit		23.695	61	23.632
Base	2 3	27.102	54	27.090
Summit		23.694	60.5	23.632
Base	2 4	27.103	54	27.090
Summit		23.690	60	23.629
Base	2 5	27.104	54	27.092
Summit		23.692	59.5	23.632
Base	2 6	27.100	54	27.088
Summit		23.690	60	23.629
Base	2 7	27.100	54	27.087
Summit		23.685	60.5	23.623
Base	2 8	27.100	54	27.088
Summit		23.695	61	23.632
Base	2 9	27.100	54	27.088
Summit		23.693	61	23.630
Base	2 10	27.100	54	27.087
Summit		23.690	60.5	23.628
Base	2 11	27.100	54	27.087
Summit		23.685	60.5	23.623
Base	2 12	27.100	54	27.087
Summit		23.685	60.5	23.623
Base	2 13	27.100	54	27.087
Summit		23.685	60.5	23.623
Base	2 14	27.100	54	27.088
	p. m.			
Summit	2 15	23.683	60	23.622
Base		27.100	54	27.087
Summit		23.690	60	23.629
Base	2 16	27.100	54.5	27.085
Summit		23.690	60	23.629
Base	2 17	27.100	54.5	27.086
Summit		23.694	61	23.631
Base	2 18	27.100	54.5	27.086
Summit		23.695	61	23.632
Base	2 19	27.100	54.5	27.086
Summit		23.695	61.5	23.631
Base	2 20	27.100	54.5	27.087
Summit		23.694	62	23.629
Base	2 21	27.100	55	27.086
Summit		23.694	63	23.627
Base	2 22	27.100	55	27.086
Summit		23.694	63.5	23.626
Base	2 23	27.100	55	27.085
Summit		23.696	64	23.627
Base	2 24	27.100	55	27.086
Summit		23.696	64	23.627
Base	2 25	27.100	55	27.086
Summit		23.695	64	23.626
Base	2 26	27.101	55	27.087
Summit		23.698	64.5	23.626
Base	2 27	27.100	55	27.086
Summit		23.698	64.5	23.628
Base	2 28	27.102	55	27.088
Summit		23.695	64.5	23.625
Base	2 29	27.101	55	27.087
	p. m.			
Summit	2 30	23.695	64	23.626
Base		27.101	55	27.087
Summit		23.695	64	23.626
Base	2 31	27.103	53	27.089
Summit		23.695	64	23.626
Base	2 32	27.106	55	27.092
Summit		23.692	63.5	23.624
Base	2 33	27.104	55	27.090
Summit		23.692	63	23.625
Base	2 34	27.107	55	27.093
Summit		23.688	62	23.623
Base	2 35	27.106	55	27.092
Summit		23.692	62.5	23.626
Base	2 36	27.106	53	27.092
Summit		23.692	62.5	23.626
Base	2 37	27.104	53	27.090
Summit		23.692	62	23.627
Base	2 38	27.103	55	27.088
Summit		23.693	62	23.626
Base	2 39	27.103	55	27.089
Summit		23.692	62	23.627
Base	2 40	27.102	55.5	27.087
Summit		23.692	62	23.627
Base	2 41	27.102	55.5	27.087
Summit		23.692	62	23.627
Base	2 42	27.103	55.5	27.088
Summit		23.695	62	23.630
Base	2 43	27.102	55.5	27.087
Summit		23.690	62	23.633
Base	2 44	27.104	55.5	27.085
	p. m.			
Summit	2 45	23.695	62	23.630
Base		27.100	55.5	27.091
Summit		23.695	61.5	23.631
Base	2 46	27.100	55.5	27.091
Summit		23.695	61.5	23.631
Base	2 47	27.101	55.5	27.092
Summit		23.692	61	23.629
Base	2 48	27.101	55.5	27.092
Summit		23.692	61	23.629
Base	2 49	27.103	55.5	27.094
Summit		23.692	61	23.629
Base	2 50	27.101	55.5	27.091
Summit		23.693	61	23.629
Base	2 51	27.103	56	27.093
Summit		23.690	61	23.627
Base	2 52	27.102	56	27.093
Summit		23.688	61	23.625
Base	2 53	27.103	56	27.093
Summit		23.688	61	23.625
Base	2 54	27.103	55.5	27.093
Summit		23.682	61.5	23.618
Base	2 55	27.104	55.5	27.095
Summit		23.682	62	23.617
Base	2 56	27.103	55.5	27.094
Summit		23.682	62	23.617
Base	2 57	27.102	55.5	27.093
Summit		23.683	62	23.618
Base	2 58	27.104	56	27.094
Summit		23.686	62	23.621
Base	2 59	27.102	56	27.094

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,988.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 19, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					*p. m.*					*p. m.*					*p. m.*			
Summit	2 0	23.764	63	23.695	Summit.	2 15	23.781	62	23.715	Summit.	2 30	23.780	63	23.711	Summit.	2 45	23.795	62.5	23.727
Base ..		27.239	56	27.162	Base ...		27.239	57.5	27.158	Base ...		27.240	59	27.156	Base ...		27.249	59	27.165
Summit	2 1	23.770	62	23.704	Summit.	2 16	23.779	62	23.713	Summit.	2 31	23.780	63	23.711	Summit.	2 46	23.793	62.5	23.725
Base...		27.239	56	27.162	Base ...		27.239	57.5	27.158	Base ...		27.242	59	27.158	Base ...		27.250	59	27.166
Summit	2 2	23.769	61.5	23.704	Summit.	2 17	23.782	62	23.716	Summit.	2 32	23.780	63	23.711	Summit.	2 47	23.793	62.5	23.725
Base...		27.239	56.5	27.161	Base ...		27.240	57.5	27.159	Base ...		27.242	59	27.158	Base ...		27.250	59	27.166
Summit	2 3	23.770	61.5	23.705	Summit.	2 18	23.782	62	23.716	Summit	2 33	23.781	63	23.712	Summit.	2 48	23.792	62.5	23.724
Base...		27.239	56.5	27.161	Base ...		27.240	58	27.158	Base ...		27.244	59	27.160	Base ...		27.250	59	27.166
Summit	2 4	23.770	61.5	23.705	Summit.	2 19	23.780	62	23.714	Summit.	2 34	23.787	63	23.718	Summit.	2 49	23.795	62	23.728
Base...		27.238	57	27.158	Base ...		27.240	58	27.158	Base ...		27.242	59	27.158	Base ...		27.250	59	27.166
Summit	2 5	23.770	61.5	23.705	Summit.	2 20	23.780	62	23.714	Summit.	2 35	23.789	63	23.720	Summit.	2 50	23.795	62	23.728
Base...		27.238	57	27.158	Base ...		27.240	58	27.158	Base ...		27.243	59	27.159	Base ...		27.250	59	27.166
Summit	2 6	23.771	62	23.705	Summit.	2 21	23.779	62	23.705	Summit.	2 36	23.789	63	23.720	Summit	2 51	23.790	62	23.723
Base...		27.239	57	27.159	Base ...		27.240	58	27.158	Base ...		27.242	59	27.158	Base ...		27.251	59	27.167
Summit	2 7	23.772	62	23.706	Summit.	2 22	23.773	62	23.706	Summit.	2 37	23.789	63	23.720	Summit.	2 52	23.790	62	23.723
Base ..		27.239	57	27.159	Base ...		27.240	58	27.158	Base ...		27.243	59	27.159	Base ..		27.250	59	27.166
Summit	2 8	23.771	62.5	23.704	Summit.	2 23	23.772	62	23.705	Summit.	2 38	23.789	63	23.720	Summit.	2 53	23.790	62	23.723
Base...		27.239	57	27.159	Base ...		27.240	58.5	27.157	Base ...		27.249	59	27.165	Base ...		27.252	59	27.168
Summit	2 9	23.773	63	23.705	Summit.	2 24	23.774	62	23.707	Summit.	2 39	23.789	63	23.720	Summit	2 54	23.792	62	23.725
Base...		27.239	57	27.159	Base ...		27.240	59	27.156	Base ...		27.248	59.5	27.163	Base ...		27.250	59	27.166
Summit	2 10	23.773	63	23.705	Summit.	2 25	23.778	62	23.711	Summit.	2 40	23.789	62.5	23.721	Summit.	2 55	23.792	62	23.725
Base ..		27.239	57	27.159	Base ...		27.242	59	27.158	Base ...		27.249	59.5	27.164	Base ...		27.250	59	27.166
Summit	2 11	23.778	63	23.710	Summit.	2 26	23.779	62.5	23.711	Summit.	2 41	23.790	62.5	23.722	Summit	2 56	23.792	62	23.725
Base ..		27.239	57	27.159	Base ...		27.241	59	27.157	Base ...		27.248	59.5	27.163	Base ...		27.250	59	27.166
Summit	2 12	23.781	62.5	23.714	Summit.	2 27	23.779	62.5	23.711	Summit.	2 42	23.794	62.5	23.726	Summit	2 57	23.792	62	23.725
Base ..		27.239	57	27.159	Base ...		27.241	59	27.157	Base ...		27.248	59.5	27.163	Base ...		27.252	59	27.168
Summit	2 13	23.780	62.5	23.713	Summit.	2 28	23.779	63	23.709	Summit	2 43	23.793	62.5	23.725	Summit	2 58	23.793	62	23.726
Base...		27.239	57	27.159	Base ..		27.240	59	27.156	Base ...		27.248	59	27.164	Base ...		27.252	59	27.168
Summit	2 14	23.782	62	23.716	Summit.	2 29	23.779	63	23.709	Summit.	2 44	23.795	62.5	23.727	Summit.	2 59	23.794	62	23.727
Base...		27.239	57	27.159	Base ...		27.240	59	27.156	Base ...		27.247	59	27.163	Base ...		27.251	59	27.167

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 20, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					*p. m.*					*p. m.*					*p. m.*			
Summit	2 0	24.035	48	23.998	Summit.	2 15	24.040	51	23.997	Summit	2 30	24.050	55	23.998	Summit.	2 45	24.060	57	24.004
Base		27.488	59.5	27.402	Base		27.486	60	27.399	Base		27.487	61	27.398	Base		27.488	62	27.397
Summit	2 1	24.035	48	23.998	Summit.	2 16	24.040	52	23.995	Summit.	2 31	24.050	55	23.998	Summit.	2 46	24.055	57	23.999
Base		27.488	60	27.401	Base		27.488	60	27.401	Base		27.485	61	27.396	Base		27.488	62	27.397
Summit	2 2	24.035	48	23.998	Summit.	2 17	24.042	53	23.995	Summit.	2 32	24.050	55	23.998	Summit.	2 47	24.055	58	23.997
Base		27.488	60	27.401	Base		27.487	60.5	27.399	Base		27.487	61	27.398	Base		27.488	62	27.397
Summit	2 3	24.035	48	23.998	Summit.	2 18	24.042	53	23.995	Summit.	2 33	24.050	55	23.998	Summit.	2 48	24.055	58	23.997
Base		27.488	60	27.401	Base		27.488	60.5	27.400	Base		27.487	61	27.398	Base		27.488	62	27.397
Summit	2 4	24.035	48	23.998	Summit	2 19	24.045	54	23.995	Summit.	2 34	24.050	55	23.998	Summit.	2 49	24.055	57.5	23.998
Base		27.488	60	27.401	Base		27.487	61	27.398	Base		27.487	61	27.398	Base		22.488	62	27.397
Summit	2 5	24.038	48	24.001	Summit.	2 20	24.045	54	23.995	Summit.	2 35	24.050	55.5	23.997	Summit.	2 50	24.055	57.5	23.998
Base		27.488	60	27.401	Base		27.487	61	27.398	Base		27.487	61.5	27.397	Base		22.488	62	27.397
Summit	2 6	24.038	48	24.001	Summit.	2 21	24.048	54	23.998	Summit.	2 36	24.050	55.5	23.997	Summit.	2 51	24.058	57	24.002
Base		27.487	60	27.400	Base		27.487	61	27.398	Base		27.486	61.5	27.396	Base		27.488	62	27.397
Summit	2 7	24.038	48	24.001	Summit.	2 22	24.050	54	24.000	Summit.	2 37	24.050	56	23.996	Summit.	2 52	24.058	57	24.002
Base		27.487	60	27.400	Base		27.487	61	27.398	Base		27.488	61.5	27.398	Base		27.488	62	27.397
Summit	2 8	24.038	48.5	24.000	Summit.	2 23	24.050	54	24.000	Summit.	2 38	24.052	56	23.998	Summit.	2 53	24.060	57	24.004
Base		27.488	60	27.401	Base		27.485	61	27.396	Base		27.485	61.5	27.395	Base		27.487	62	27.396
Summit	2 9	24.038	48.5	24.000	Summit	2 24	24.050	54	24.000	Summit	2 39	24.055	56	24.001	Summit.	2 54	24.060	57	24.004
Base		27.488	60	27.401	Base		27.486	61	27.397	Base		27.486	61.5	27.396	Base		27.486	62	27.395
Summit	2 10	24.038	48.5	24.000	Summit.	2 25	24.050	55	23.998	Summit	2 40	24.058	56.5	24.003	Summit	2 55	24.060	57	24.004
Base		27.487	60	27.400	Base		27.486	61	27.397	Base		27.487	61.5	27.397	Base		27.483	62	27.392
Summit	2 11	24.040	49	24.001	Summit.	2 26	24.050	55	23.998	Summit	2 41	24.058	56.5	24.003	Summit.	2 56	24.060	57	24.004
Base		27.487	60	27.400	Base		27.485	61	27.396	Base		27.484	61.5	27.394	Base		27.484	62.5	27.392
Summit	2 12	24.040	49	24.001	Summit	2 27	24.050	55	23.998	Summit.	2 42	24.058	56.5	24.003	Summit	2 57	24.060	57	24.004
Base		27.485	60	27.598	Base		27.485	61	27.396	Base		27.487	61.5	27.397	Base		27.484	63	27.391
Summit	2 13	24.041	50	24.000	Summit.	2 28	24.050	55	23.998	Summit.	2 43	24.058	56.5	24.003	Summit.	2 58	24.058	56.5	24.003
Base		27.485	60	27.398	Base		27.487	61	27.398	Base		27.486	61.5	27.396	Base		27.483	63	27.390
Summit	2 14	24.040	50	23.999	Summit.	2 29	24.050	55	23.998	Summit.	2 44	24.060	57	24.004	Summit.	2 59	24.058	56.5	24.002
Base		27.484	60	27.397	Base		27.487	61	27.398	Base		27.487	61.5	27.397	Base		27.483	63	27.390

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 21, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					p. m.					p. m.			
Summit	9 0	24.050	66	23.975	Summit	9 15	24.046	65	23.973	Summit	9 30	24.048	63	23.979
Base		27.490	60	27.403	Base		27.492	61	27.402	Base		27.491	61	27.401
Summit	9 1	24.048	66	23.973	Summit	9 16	24.050	65	23.977	Summit	9 31	24.048	63	23.979
Base		27.490	60	27.403	Base		27.492	61	27.402	Base		27.491	61	27.401
Summit	9 2	24.048	66	23.973	Summit	9 17	24.050	65	23.977	Summit	9 32	24.048	63	23.979
Base		27.491	60.5	27.403	Base		27.491	61	27.402	Base		27.491	61	27.401
Summit	9 3	24.049	66	23.973	Summit	9 18	24.049	65	23.976	Summit	9 33	24.048	63	23.979
Base		27.491	60.5	27.403	Base		27.491	61	27.401	Base		27.491	61	27.401
Summit	9 4	24.048	66	23.973	Summit	9 19	24.050	64.5	23.978	Summit	9 34	24.046	63	23.977
Base		27.491	61	27.401	Base		27.491	61	27.401	Base		27.491	61	27.401
Summit	9 5	24.050	65	23.977	Summit	9 20	24.050	64.5	23.978	Summit	9 35	24.049	62.5	23.981
Base		27.491	61	27.401	Base		27.491	61	27.401	Base		27.490	60.5	27.401
Summit	9 6	24.051	65	23.978	Summit	9 21	24.045	64	23.974	Summit	9 36	24.047	62.5	23.979
Base		27.491	61	27.401	Base		27.491	61	27.401	Base		27.490	60.5	27.401
Summit	9 7	24.047	65	23.974	Summit	9 22	24.048	64	23.977	Summit	9 37	24.049	62.5	23.981
Base		27.491	61	27.401	Base		27.491	61	27.401	Base		27.490	60.5	27.401
Summit	9 8	24.047	65	23.974	Summit	9 23	24.044	64	23.977	Summit	9 38	24.049	62.5	23.981
Base		27.492	61	27.402	Base		27.491	61	27.401	Base		27.490	60.5	27.401
Summit	9 9	24.050	64.5	23.977	Summit	9 24	24.048	64	23.977	Summit	9 39	24.049	62.5	23.981
Base		27.492	61	27.402	Base		27.491	61	27.401	Base		27.490	60.5	27.401
Summit	9 10	24.049	64.5	23.977	Summit	9 25	24.050	64	23.979	Summit	9 40	24.045	62.5	23.977
Base		27.492	61	27.402	Base		27.491	61	27.401	Base		27.490	60.5	27.401
Summit	9 11	24.050	65	23.977	Summit	9 26	24.050	64	23.979	Summit	9 41	24.045	62.5	23.977
Base		27.492	61	27.402	Base		27.491	61	27.401	Base		27.490	60.5	27.401
Summit	9 12	24.050	65	23.977	Summit	9 27	24.047	64	23.976	Summit	9 42	24.045	62.5	23.977
Base		27.492	61	27.402	Base		27.491	61	27.401	Base		27.490	60	27.403
Summit	9 13	24.050	65.5	23.976	Summit	9 28	24.050	63.5	23.979	Summit	9 43	24.043	62.5	23.975
Base		27.492	61	27.402	Base		27.491	61	27.401	Base		27.490	60	27.403
Summit	9 14	24.050	65.5	23.976	Summit	9 29	24.050	63	23.981	Summit	9 44	24.043	62.5	23.975
Base		27.492	61	27.402	Base		27.491	61	27.401	Base		27.490	60	27.403

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Summit	9 45	24.046	62.5	23.978
Base		27.490	60	27.403
Summit	9 46	24.045	62	23.978
Base		27.490	60	27.403
Summit	9 47	24.045	61.5	23.979
Base		27.490	60	27.403
Summit	9 48	24.044	61.5	23.978
Base		27.490	60	27.403
Summit	9 49	24.046	61.5	23.980
Base		27.490	60	27.403
Summit	9 50	24.044	61	23.979
Base		27.490	60	27.403
Summit	9 51	24.044	61.5	23.978
Base		27.490	60	27.403
Summit	9 52	24.044	61.5	23.978
Base		27.490	60	27.403
Summit	9 53	24.046	61.5	23.980
Base		27.490	60	27.403
Summit	9 54	24.046	61.5	23.980
Base		27.489	59.5	27.403
Summit	9 55	24.046	61	23.979
Base		27.489	59.5	27.403
Summit	9 56	24.041	61	23.975
Base		27.489	59.5	27.403
Summit	9 57	24.041	61	23.976
Base		27.489	59.5	27.403
Summit	9 58	24.040	61.5	23.974
Base		27.489	59.5	27.403
Summit	9 59	24.040	61.5	23.974
Base		27.489	59.5	27.403

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

37 W

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Meteorological record for May 22, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					p. m.					p. m.					p. m.			
Summit	9 0	23.961	60	23.898	Summit.	9 15	23.962	62	23.895	Summit	9 30	23.970	63	23.901	Summit.	9 45	23.970	63	23.901
Base		27.389	60	27.302	Base		27.389	60	27.302	Base		27.379	59.5	27.293	Base		27.376	60	27.289
Summit	9 1	23.961	60	23.898	Summit.	9 16	23.963	62	23.896	Summit.	9 31	23.970	63	23.901	Summit.	9 46	23.970	63	23.901
Base		27.389	60	27.302	Base		27.388	60	27.302	Base		27.379	59.5	27.293	Base		27.376	60	27.289
Summit	9 2	23.960	60	23.897	Summit.	9 17	23.963	62	23.896	Summit.	9 32	23.970	63	23.901	Summit.	9 47	23.970	63	23.901
Base		27.389	60	27.302	Base		27.388	60	27.301	Base		27.379	59.5	27.293	Base		27.376	60	27.289
Summit	9 3	23.960	61	23.895	Summit.	9 18	23.963	62	23.896	Summit.	9 33	23.970	63	23.901	Summit.	9 48	23.965	64	23.904
Base		27.389	60.5	27.301	Base		27.388	60	27.301	Base		27.379	59.5	27.293	Base		27.379	60	27.292
Summit	9 4	23.961	61	23.896	Summit.	9 19	23.961	61.5	23.895	Summit.	9 34	23.970	63	23.901	Summit.	9 49	23.965	64	23.904
Base		27.389	61	27.299	Base		27.388	60	27.301	Base		27.379	59.5	27.293	Base		27.379	60	27.292
Summit	9 5	23.961	61	23.896	Summit.	9 20	23.961	62	23.894	Summit.	9 35	23.970	63.5	23.900	Summit.	9 50	23.965	64	23.904
Base		27.389	61	27.299	Base		27.388	60	27.301	Base		27.379	59.5	27.293	Base		27.379	60	27.292
Summit	9 6	23.961	61	23.896	Summit.	9 21	23.961	62	23.894	Summit.	9 36	23.970	63.5	23.900	Summit.	9 51	23.965	64	23.904
Base		27.389	61	27.299	Base		27.388	60	27.301	Base		27.376	59	27.291	Base		27.379	60	27.292
Summit	9 7	23.962	60	23.899	Summit.	9 22	23.962	62.5	23.894	Summit.	9 37	23.970	63.5	23.900	Summit.	9 52	23.965	64	23.904
Base		27.389	61	27.299	Base		27.380	60	27.293	Base		27.376	59	27.291	Base		27.379	60	27.292
Summit	9 8	23.963	60	23.899	Summit.	9 23	23.963	63	23.894	Summit.	9 38	23.970	63.5	23.900	Summit.	9 53	23.965	64	23.904
Base		27.389	61	27.299	Base		27.380	60	27.293	Base		27.376	59.5	27.290	Base		27.379	60	27.292
Summit	9 9	23.962	60	23.899	Summit.	9 24	23.970	63	23.901	Summit.	9 39	23.970	63.5	23.900	Summit.	9 54	23.965	64	23.904
Base		27.389	61	27.299	Base		27.379	60	27.292	Base		27.376	60	27.289	Base		27.379	60	27.292
Summit	9 10	23.962	61	23.897	Summit.	9 25	23.970	63	23.901	Summit.	9 40	23.970	63.5	23.900	Summit.	9 55	23.965	64	23.904
Base		27.389	61	27.299	Base		27.380	60	27.293	Base		27.377	60	27.290	Base		27.379	60	27.292
Summit	9 11	23.962	61	23.897	Summit.	9 26	23.965	63	23.896	Summit.	9 41	23.965	63.5	23.895	Summit.	9 56	23.965	64	23.904
Base		27.389	61	27.299	Base		27.380	60	27.293	Base		27.377	60	27.290	Base		27.378	60	27.291
Summit	9 12	23.962	61	23.897	Summit	9 27	23.965	63	23.896	Summit.	9 42	23.965	63.5	23.895	Summit.	9 57	23.965	64	23.904
Base		27.389	60.5	27.301	Base		27.380	59.5	27.294	Base		27.377	60	27.290	Base		27.378	60	27.291
Summit	9 13	23.962	62	23.895	Summit.	9 28	23.965	63	23.896	Summit.	9 43	23.970	63	23.901	Summit.	9 58	23.965	64	23.904
Base		27.389	60	27.302	Base		27.380	59.5	27.294	Base		27.376	60	27.290	Base		27.378	60	27.291
Summit	9 14	23.962	62	23.895	Summit.	9 29	23.970	63	23.901	Summit.	9 44	23.970	63	23.901	Summit.	9 59	23.965	64	23.904
Base		27.389	60	27.302	Base		27.380	59.5	27.294	Base		27.376	60	27.289	Base		27.378	60	27.291

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					p. m.					p. m.					p. m.			
Summit	9 0	23.854	65	23.781	Summit.	9 15	23.855	69	23.773	Summit.	9 30	23.855	71	23.769	Summit.	9 45	23.849	70	23.765
Base...		27.179	65	27.081	Base....		27.179	64.5	27.082	Base....		27.159	64	27.063	Base....		27.159	63.5	27.064
Summit	9 1	23.854	65	23.781	Summit.	9 16	23.855	70	23.771	Summit.	9 31	23.860	71.5	23.773	Summit.	9 46	23.850	70	23.766
Base...		27.179	65	27.081	Base....		27.179	64.5	27.082	Base....		27.159	64	27.063	Base....		27.159	63.5	27.064
Summit	9 2	23.850	65	23.777	Summit.	9 17	23.858	70.5	23.773	Summit.	9 32	23.853	70	23.769	Summit.	9 47	23.850	70	23.766
Base..		27.179	65	27.081	Base....		27.170	64.5	27.073	Base....		27.159	64	27.063	Base....		27.156	63	27.063
Summit	9 3	23.854	65	23.781	Summit.	9 18	23.858	71	23.772	Summit.	9 33	23.852	70.5	23.767	Summit.	9 48	23.850	70	23.766
Base...		27.179	65	27.081	Base....		27.170	64.5	27.073	Base....		27.159	64	27.063	Base....		27.156	63	27.063
Summit	9 4	23.850	65	23.777	Summit.	9 19	23.856	71	23.770	Summit.	9 34	23.855	71	23.769	Summit.	9 49	23.850	70	23.766
Base...		27.179	65	27.081	Base....		27.170	64.5	27.073	Base....		27.159	63.5	27.064	Base....		27.156	63	27.063
Summit	9 5	23.854	65.5	23.780	Summit.	9 20	23.855	71.5	23.768	Summit.	9 35	23.850	70.5	23.765	Summit.	9 50	23.850	70	23.766
Base..		27.179	65	27.081	Base....		27.169	64	27.072	Base....		27.159	63.5	27.064	Base....		27.156	63	27.063
Summit	9 6	23.850	65	23.777	Summit.	9 21	23.850	71.5	23.763	Summit.	9 36	23.850	70.5	23.765	Summit.	9 51	23.848	69.5	23.765
Base..		27.179	65	27.081	Base....		27.169	64	27.073	Base....		27.159	63.5	27.064	Base....		27.156	63	27.063
Summit	9 7	23.850	65.5	23.776	Summit.	9 22	23.852	71.5	23.765	Summit.	9 37	23.850	70.5	23.765	Summit.	9 52	23.848	69.5	23.765
Base..		27.179	65	27.081	Base....		27.169	64	27.073	Base....		27.159	63.5	27.064	Base....		27.150	63	27.057
Summit	9 8	23.850	65.5	23.776	Summit.	9 23	23.858	71.5	23.771	Summit.	9 38	23.850	70.5	23.765	Summit.	9 53	23.851	70	23.767
Base..		27.180	65	27.082	Base....		27.169	64	27.073	Base....		27.159	63.5	27.064	Base....		27.150	63	27.057
Summit	9 9	23.850	66	23.775	Summit.	9 24	23.854	71	23.768	Summit.	8 39	23.853	70.5	23.768	Summit.	9 54	23.851	70	23.767
Base...		27.180	65	27.082	Base		27.159	64	27.063	Base....		27.159	63.5	27.064	Base....		27.150	63	27.057
Summit	9 10	23.850	66.5	23.774	Summit.	9 25	23.855	71	23.769	Summit.	9 40	23.850	70	23.766	Summit.	9 55	23.851	70	23.767
Base...		27.180	65	27.082	Base....		27.159	64	27.063	Base....		27.159	63.5	27.064	Base....		27.150	63	27.057
Summit	9 11	23.854	67	23.776	Summit.	9 26	23.855	71	23.769	Summit.	9 41	23.850	70	23.766	Summit.	9 56	23.850	70	23.766
Base...		27.180	65	27.082	Base....		27.159	64	27.063	Base....		27.159	63.5	27.064	Base....		27.150	63	27.057
Summit	9 12	23.856	67.5	23.777	Summit.	9 27	23.855	71	23.769	Summit.	9 42	23.849	70	23.765	Summit.	9 57	23.850	70	23.766
Base....		27.178	64.5	27.081	Base....		27.159	64	27.063	Base....		27.159	63.5	27.064	Base....		27.150	63	27.057
Summit	9 13	23.856	68	23.776	Summit.	9 28	23.855	71	23.769	Summit.	9 43	23.849	70	23.765	Summit.	9 58	23.848	69.5	23.766
Base...		27.178	64.5	27.081	Base....		27.159	64	27.063	Base....		27.159	63.5	27.064	Base....		27.150	63	27.057
Summit	9 14	23.854	68.5	23.773	Summit.	9 29	23.858	71	23.772	Summit	9 44	23.849	70	23.765	Summit.	9 59	23.848	69.5	23.765
Base ..		27.178	64.5	27.081	Base....		27.159	64	27.063	Base....		27.159	63.5	27.064	Base....		27.150	63	27.057

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 24, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.													
Summit	9 0	23.590	62	23.513	Summit	9 15	23.590	62.5	23.492	Summit	9 30	23.555	63	23.486
Base		27.018	63	26.925	Base		27.020	64.5	26.923	Base		27.020	64	26.924
Summit	9 1	23.580	62	23.513	Summit	9 16	23.560	64	23.488	Summit	9 31	23.560	63	23.491
Base		27.018	63.5	26.924	Base		27.020	64.5	26.923	Base		27.020	64	26.924
Summit	9 2	23.570	62	23.503	Summit	9 17	23.555	63	23.488	Summit	9 32	23.560	63	23.491
Base		27.018	63.5	26.924	Base		27.019	64	26.923	Base		27.020	64	26.924
Summit	9 3	23.570	62	23.503	Summit	9 18	23.560	63	23.493	Summit	9 33	23.560	63.5	23.490
Base		27.018	63.5	26.924	Base		27.019	64	26.923	Base		27.020	64	26.924
Summit	9 4	23.560	62	23.493	Summit	9 19	23.570	62.5	23.502	Summit	9 34	23.560	63.5	23.490
Base		27.018	63.5	26.924	Base		27.019	64	26.923	Base		27.020	64	26.924
Summit	9 5	23.562	62	23.495	Summit	9 20	23.570	62.5	23.502	Summit	9 35	23.560	63.5	23.490
Base		27.018	64	26.922	Base		27.019	64	26.923	Base		27.020	64	26.924
Summit	9 6	23.565	62	23.498	Summit	9 21	23.570	62.5	23.502	Summit	9 36	23.560	63.5	23.490
Base		27.018	64	26.923	Base		27.019	64	26.923	Base		27.020	64	26.924
Summit	9 7	23.565	62	23.498	Summit	9 22	23.570	62.5	23.502	Summit	9 37	23.560	64	23.489
Base		27.019	65	26.921	Base		27.019	64	26.923	Base		27.020	64	26.924
Summit	9 8	23.565	62	23.496	Summit	9 23	23.565	63	23.496	Summit	9 38	23.560	64	23.489
Base		27.019	65	26.921	Base		27.019	64	26.923	Base		27.020	64	26.924
Summit	9 9	23.565	62	23.496	Summit	9 24	23.565	63	23.496	Summit	9 39	23.550	64	23.479
Base		27.019	65	26.921	Base		27.019	64	26.923	Base		27.020	64	26.924
Summit	9 10	23.563	62	23.496	Summit	9 25	23.565	63	23.496	Summit	9 40	23.550	64	23.479
Base		27.019	65	26.921	Base		27.019	64	26.923	Base		27.020	64	26.924
Summit	9 11	23.563	62	23.496	Summit	9 26	23.570	63	23.501	Summit	9 41	23.550	64	23.479
Base		27.019	65	26.921	Base		27.019	64	26.923	Base		27.020	64	26.924
Summit	9 12	23.563	62	23.496	Summit	9 27	23.570	63	23.501	Summit	9 42	23.550	64	23.479
Base		27.020	64.5	26.923	Base		27.019	64	26.923	Base		27.020	63.5	26.925
Summit	9 13	23.560	62	23.493	Summit	9 28	23.565	63	21.496	Summit	9 43	23.550	64	23.479
Base		27.020	64.5	26.923	Base		27.019	64	26.923	Base		27.020	63.5	26.925
Summit	9 14	23.560	62.5	23.493	Summit	9 29	23.560	63	23.491	Summit	9 44	23.550	64	23.479
Base		27.020	64.5	26.923	Base		27.020	64	26.924	Base		27.020	63.5	26.925

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Summit	9 45	23.550	64	23.479
Base		27.019	63.5	26.924
Summit	9 46	23.550	64	23.479
Base		27.019	63.5	26.924
Summit	9 47	23.550	64	23.478
Base		27.019	63.5	26.924
Summit	9 48	23.550	64.5	23.478
Base		27.019	63.5	26.924
Summit	9 49	23.550	65	23.477
Base		27.019	63.5	26.924
Summit	9 50	23.555	65	23.482
Base		27.019	63.5	26.924
Summit	9 51	23.555	66	23.480
Base		27.019	63.5	26.924
Summit	9 52	23.560	66	23.485
Base		27.019	63	26.926
Summit	9 53	23.560	66	23.485
Base		27.019	63	26.926
Summit	9 54	23.565	66	23.490
Base		27.019	63	26.926
Summit	9 55	23.565	66	23.490
Base		27.019	63	26.926
Summit	9 56	23.565	67	23.487
Base		27.019	63	26.926
Summit	9 57	23.565	67	23.487
Base		27.019	63	26.926
Summit	9 58	23.565	67	23.487
Base		27.019	63	26.926
Summit	9 59	23.565	67	23.487
Base		27.019	63	26.926

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,696.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 25, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Summit	9 0	24.001	73	23.911
Base		27.349	65	27.259
Summit	9 1	24.001	73	23.911
Base		27.349	65	27.259
Summit	9 2	24.003	73	23.913
Base		27.349	65	27.259
Summit	9 3	24.101	73	23.911
Base		27.349	65	27.259
Summit	9 4	24.001	73	23.911
Base		27.349	65	27.259
Summit	9 5	24.000	73	23.910
Base		27.349	65	27.259
Summit	9 6	24.000	73	23.910
Base		27.349	65	27.259
Summit	9 7	24.000	73	23.910
Base		27.349	65	27.259
Summit	9 8	24.002	73	23.912
Base		27.349	65	27.259
Summit	9 9	24.003	73	23.913
Base		27.349	65	27.259
Summit	9 10	24.004	73	23.914
Base		27.349	65	27.259
Summit	9 11	24.004	73	23.914
Base		27.349	65	27.259
Summit	9 12	24.004	73	23.914
Base		27.349	65	27.259
Summit	9 13	24.004	73	23.914
Base		27.349	65	27.259
Summit	9 14	24.004	73	23.914
Base		27.349	65	27.259
Summit	9 15	24.007	73.5	23.916
Base		27.349	65	27.259
Summit	9 16	24.007	73.5	23.916
Base		27.349	65	27.259
Summit	9 17	24.010	73.5	23.919
Base		27.349	65	27.259
Summit	9 18	24.010	73	23.920
Base		27.349	64.5	27.259
Summit	9 19	24.009	73	23.919
Base		27.349	64.5	27.259
Summit	9 20	24.010	73	23.920
Base		27.349	64.5	27.259
Summit	9 21	24.008	73	23.918
Base		27.349	64.5	27.259
Summit	9 22	24.008	73	23.918
Base		27.349	64.5	27.259
Summit	9 23	24.008	73	23.918
Base		27.349	64.5	27.259
Summit	9 24	24.008	73	23.918
Base		27.349	64.5	27.259
Summit	9 25	24.011	72.5	23.922
Base		27.349	64.5	27.259
Summit	9 26	24.011	72.5	23.921
Base		27.349	64.5	27.259
Summit	9 27	24.011	72.5	23.921
Base		27.349	64.5	27.259
Summit	9 28	24.011	72.5	23.921
Base		27.349	64.5	27.259
Summit	9 29	24.011	72.5	23.921
Base		27.349	64.5	27.259
Summit	9 30	24.011	72	23.922
Base		27.349	64.5	27.259
Summit	9 31	24.011	72	23.923
Base		27.349	64	27.259
Summit	9 32	24.011	72.5	23.922
Base		27.349	64	27.259
Summit	9 33	24.011	72.5	23.922
Base		27.349	64	27.259
Summit	9 34	24.013	72.5	23.924
Base		27.349	64	27.259
Summit	9 35	24.013	72.5	23.924
Base		27.349	64	27.259
Summit	9 36	24.010	72.5	23.921
Base		27.349	64	27.259
Summit	9 37	24.012	72.5	23.923
Base		27.349	64	27.259
Summit	9 38	24.009	72.5	23.920
Base		27.349	63.5	27.253
Summit	9 39	24.013	72.5	23.924
Base		27.349	63.5	27.253
Summit	9 40	24.013	72.5	23.924
Base		27.349	63.5	27.253
Summit	9 41	24.011	72.5	23.922
Base		27.349	63.5	27.253
Summit	9 42	24.006	73	23.918
Base		27.349	63.5	27.253
Summit	9 43	24.006	73	23.918
Base		27.349	63.5	27.253
Summit	9 44	24.005	73	23.917
Base		27.349	63.5	27.253

[illegible] have been reduced to sea-level by adding 0.109 foot. Barometer readings corrected for tem-

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Meteorological record for May 26, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					*p. m.*					*p. m.*					*p. m.*			
Summit	9 0	24.035	68	23.955	Summit.	9 15	24.035	70	23.951	Summit.	9 30	24.040	71.5	23.953	Summit.	9 45	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66.5	27.267	Base		27.370	66	27.269	Base		27.371	65	27.272
Summit	9 1	24.035	68	23.955	Summit.	9 16	24.035	70.5	23.950	Summit.	9 31	24.040	71.5	23.953	Summit.	9 46	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66.5	27.267	Base		27.370	66	27.269	Base		27.371	65	27.272
Summit	9 2	24.035	68	23.955	Summit.	9 17	24.035	70.5	23.950	Summit.	9 32	24.040	71.5	23.953	Summit.	9 47	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66	27.269	Base		27.370	66	27.269	Base		27.371	65	27.272
Summit	9 3	24.035	68	23.955	Summit.	9 18	24.035	70.5	23.950	Summit.	9 33	24.035	71.5	23.948	Summit.	9 48	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66	27.269	Base		27.370	66	27.269	Base		27.371	65	27.272
Summit	9 4	24.032	68.5	23.951	Summit.	9 19	24.035	71	23.949	Summit.	9 34	24.035	71.5	23.948	Summit.	9 49	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66	27.269	Base		27.370	66	27.269	Base		27.371	65	27.272
Summit	9 5	24.032	68.5	23.951	Summit	9 20	24.035	71	23.949	Summit.	9 35	24.035	72	23.948	Summit	9 50	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66	27.269	Base		27.371	66	27.270	Base		27.371	65	27.272
Summit	9 6	24.030	69	23.948	Summit.	9 21	24.035	71	23.949	Summit.	9 36	24.035	72	23.947	Summit.	9 51	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66	27.269	Base		27.371	66	27.270	Base		27.371	65	27.272
Summit	9 7	24.032	69	23.948	Summit	9 22	24.035	71	23.949	Summit.	9 37	24.035	72	23.947	Summit.	9 52	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66	27.269	Base		27.371	65.5	27.271	Base		27.371	65	27.272
Summit	9 8	24.032	69	23.948	Summit.	9 23	24.035	71	23.949	Summit.	9 38	24.035	72	23.947	Summit.	9 53	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66	27.269	Base		27.371	65.5	27.271	Base		27.370	65	27.271
Summit	9 9	24.031	69	23.948	Summit.	9 24	24.035	71	23.949	Summit.	9 39	24.035	72	23.947	Summit.	9 54	24.035	72	23.947
Base		27.370	66.5	27.267	Base		27.370	66	27.269	Base		27.371	65.5	27.271	Base		27.370	65	27.271
Summit	9 10	24.035	69.5	23.952	Summit.	9 25	24.035	71	23.949	Summit.	9 40	24.036	72	23.948	Summit.	9 55	24.035	72	23.947
Base		27.370	66.5	27.267	Base		27.370	66	27.269	Base		27.371	65.5	27.271	Base		27.370	65	27.271
Summit	9 11	24.035	69.5	23.952	Summit.	9 26	24.035	71	23.949	Summit.	9 41	24.036	72	23.948	Summit.	9 56	24.035	72	23.947
Base		27.370	66.5	27.267	Base		27.370	66	27.269	Base		27.371	65.5	27.271	Base		27.370	65	27.271
Summit	9 12	24.035	70	23.951	Summit.	9 27	24.036	71.5	23.949	Summit.	9 42	24.036	72	23.948	Summit.	9 57	24.032	72	23.944
Base		27.370	66.5	27.267	Base		27.370	66	27.269	Base		27.371	65	27.272	Base		27.370	65	27.271
Summit	9 13	24.035	70	23.951	Summit.	9 28	24.036	71.5	23.949	Summit.	9 43	24.040	72	23.952	Summit.	9 58	24.032	72	23.944
Base		27.370	66.5	27.267	Base		27.370	66	27.269	Base		27.371	65	27.272	Base		27.370	64.5	27.272
Summit	9 14	24.035	70	23.951	Summit	9 29	24.036	71.5	23.949	Summit.	9 44	24.040	72	23.952	Summit.	9 59	24.032	72	23.944
Base		27.370	66.5	27.267	Base		27.370	66	27.269	Base		27.371	65	27.272	Base		27.370	64.5	27.272

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 27, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Summit	9 0	23.674	67	23.706
Base		27.200	70	27.060
Summit	9 1	23.674	67	23.706
Base		27.200	70	27.060
Summit	9 2	23.672	67.5	23.703
Base		27.200	70.5	27.060
Summit	9 3	23.672	67.5	23.703
Base		27.200	71	27.060
Summit	9 4	23.673	67.5	23.703
Base		27.200	71	27.060
Summit	9 5	23.672	67.5	23.703
Base		27.200	71	27.060
Summit	9 6	23.673	68	23.703
Base		27.200	71	27.060
Summit	9 7	23.673	68	23.703
Base		27.200	71	27.060
Summit	9 8	23.672	68	23.702
Base		27.200	71	27.060
Summit	9 9	23.672	68	23.702
Base		27.200	71	27.060
Summit	9 10	23.673	68	23.703
Base		27.200	71	27.060
Summit	9 11	23.673	68	23.703
Base		27.200	71	27.060
Summit	9 12	23.673	68	23.703
Base		27.200	71	27.060
Summit	9 13	23.672	68	23.702
Base		27.200	71	27.060
Summit	9 14	23.672	68	23.702
Base		27.200	71	27.060
Summit	9 15	23.672	69	23.700
Base		27.200	71	27.060
Summit	9 16	23.672	69	23.700
Base		27.200	71	27.060
Summit	9 17	23.671	69	23.699
Base		27.200	71	27.060
Summit	9 18	23.671	69	23.699
Base		27.200	71	27.060
Summit	9 19	23.671	69	23.699
Base		27.200	71	27.060
Summit	9 20	23.670	69	23.698
Base		27.200	71	27.060
Summit	9 21	23.670	68.5	23.698
Base		27.200	71	27.060
Summit	9 22	23.670	69	23.698
Base		27.200	71	27.060
Summit	9 23	23.670	69	23.698
Base		27.200	71	27.060
Summit	9 24	23.670	69	23.698
Base		27.200	71	27.060
Summit	9 25	23.670	69	23.698
Base		27.200	71	27.060
Summit	9 26	23.670	69	23.698
Base		27.200	71	27.060
Summit	9 27	23.670	69	23.698
Base		27.200	71	27.060
Summit	9 28	23.670	69	23.698
Base		27.200	71	27.060
Summit	9 29	23.670	68.5	23.698
Base		27.200	71	27.060
Summit	9 30	23.669	69	23.697
Base		27.200	71	27.060
Summit	9 31	23.669	68.5	23.697
Base		27.200	70.5	27.060
Summit	9 32	23.671	68.5	23.699
Base		27.200	70.5	27.060
Summit	9 33	23.669	68.5	23.697
Base		27.200	70.5	27.060
Summit	9 34	23.669	68	23.697
Base		27.200	70.5	27.060
Summit	9 35	23.668	68	23.696
Base		27.200	70.5	27.060
Summit	9 36	23.668	68	23.696
Base		27.200	70	27.060
Summit	9 37	23.668	70	23.696
Base		27.200	70	27.060
Summit	9 38	23.668	68	23.696
Base		27.200	70	27.060
Summit	9 39	23.668	68	23.696
Base		27.200	70	27.060
Summit	9 40	23.670	68.5	23.698
Base		27.200	70	27.060
Summit	9 41	23.668	68.5	23.696
Base		27.200	70	27.060
Summit	9 42	23.673	69	23.701
Base		27.200	70	27.060
Summit	9 43	23.670	69	23.698
Base		27.200	70	27.060
Summit	9 44	23.670	69	23.698
Base		27.199	70	27.059
Summit	9 45	23.669	68.5	23.698
Base		27.199	70	27.059
Summit	9 46	23.672	70	23.702
Base		27.199	69	27.059
Summit	9 47	23.672	70	23.702
Base		27.199	69	27.059
Summit	9 48	23.673	70	23.703
Base		27.199	69	27.059
Summit	9 49	23.673	70	23.703
Base		27.199	69	27.059
Summit	9 50	23.673	70	23.703
Base		27.199	69	27.059
Summit	9 51	23.673	70	23.703
Base		27.199	69	27.059
Summit	9 52	23.670	70.5	23.700
Base		27.199	70	27.059
Summit	9 53	23.674	69.5	23.704
Base		27.199	70	27.059
Summit	9 54	23.674	69.5	23.704
Base		27.199	70	27.059
Summit	9 55	23.672	70.5	23.702
Base		27.199	70	27.059
Summit	9 56	23.670	69.5	23.700
Base		27.199	70	27.059
Summit	9 57	23.671	69.5	23.701
Base		27.199	69.5	27.059
Summit	9 58	23.675	70	23.705
Base		27.199	69.5	27.059
Summit	9 59	23.675	70	23.705
Base		27.199	69.5	27.059

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Meteorological record for May 28, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					*p. m.*					*p. m.*					*p. m.*			
Summit	9 0	23.710	68	23.632	Summit	9 15	23.710	69.5	23.629	Summit	9 30	23.715	70	23.633	Summit	9 45	23.723	70	23.641
Base		27.138	66.5	27.097	Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	66	27.040
Summit	9 1	23.700	69	23.620	Summit	9 16	23.705	70	23.623	Summit	9 31	23.725	70	23.643	Summit	9 46	23.720	70	23.638
Base		27.138	66.5	27.037	Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 2	23.710	69	23.630	Summit	9 17	23.710	70	23.628	Summit	9 32	23.725	70	23.643	Summit	9 47	23.720	70	23.638
Base		27.138	66.5	27.037	Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 3	23.710	69	23.630	Summit	9 18	23.710	70	23.628	Summit	9 33	23.725	70	23.643	Summit	9 48	23.720	70	23.638
Base		27.138	66.5	27.037	Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 4	23.710	69.5	23.629	Summit	9 19	23.710	70	23.628	Summit	9 34	23.725	70	23.643	Summit	9 49	23.715	70	23.633
Base		27.138	66.5	27.037	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 5	23.710	69.5	23.629	Summit	9 20	23.710	70	23.628	Summit	9 35	23.725	70	23.643	Summit	9 50	23.715	70	23.633
Base		27.138	66.5	27.037	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 6	23.710	69.5	23.629	Summit	9 21	23.710	70	23.628	Summit	9 36	23.725	70	23.643	Summit	9 51	23.720	69.5	23.639
Base		27.138	66	27.039	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 7	23.705	70	23.623	Summit	9 22	23.710	70	23.628	Summit	9 37	23.725	70	23.643	Summit	9 52	23.720	69.5	23.639
Base		27.138	66	27.039	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 8	23.710	70	23.628	Summit	9 23	23.710	70	23.628	Summit	9 38	23.725	70	23.643	Summit	9 53	23.720	69.5	23.639
Base		27.138	66	27.039	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 9	23.710	70	23.628	Summit	9 24	23.720	70	23.638	Summit	9 39	23.725	70	23.643	Summit	9 54	23.720	69.5	23.639
Base		27.138	66	27.039	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 10	23.705	70	23.623	Summit	9 25	23.720	70	23.638	Summit	9 40	23.725	70	23.643	Summit	9 55	23.720	69.5	23.639
Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 11	23.705	70	23.623	Summit	9 26	23.715	70	23.633	Summit	9 41	23.725	70	23.643	Summit	9 56	23.720	69.5	23.639
Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 12	23.710	69.5	23.629	Summit	9 27	23.720	70	23.638	Summit	9 42	23.725	70	23.643	Summit	9 57	23.720	69.5	23.639
Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 13	23.710	69.5	23.629	Summit	9 28	23.720	70	23.638	Summit	9 43	23.725	70	23.643	Summit	9 58	23.720	69.5	23.639
Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 14	23.705	69.5	23.624	Summit	9 29	23.720	70	23.638	Summit	9 44	23.725	70	23.643	Summit	9 59	23.720	69.5	23.639
Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					*p. m.*					*p. m.*					*p. m.*			
Summit	9 0	23.865	67	23.787	Summit.	9 15	23.870	68.5	23.789	Summit.	9 30	23.870	69	23.788	Summit.	9 45	23.870	68.5	23.789
Base		27.226	63	27.133	Base		27.218	62	27.127	Base		27.212	61.5	27.122	Base		27.208	61	27.119
Summit	9 1	23.865	67.5	23.786	Summit.	9 16	23.870	68	23.790	Summit.	9 31	23.870	69	23.788	Summit.	9 46	23.870	68.5	23.789
Base		27.226	63	27.133	Base		27.218	61.5	27.128	Base		27.212	61.5	27.122	Base		27.206	61	27.117
Summit	9 2	23.865	67.5	23.786	Summit.	9 17	23.870	68	23.790	Summit.	9 32	23.870	69	23.788	Summit.	9 47	23.870	68.5	23.789
Base		27.223	63	27.130	Base		27.215	61.5	27.125	Base		27.210	61.5	27.120	Base		27.204	61	27.115
Summit	9 3	23.865	67.5	23.786	Summit.	9 18	23.870	68	23.790	Summit.	9 33	23.870	69	23.788	Summit.	9 48	23.870	68.5	23.789
Base		27.223	63.5	27.129	Base		27.216	61.5	27.126	Base		27.210	61.5	27.120	Base		27.205	61	27.116
Summit	9 4	23.865	68	23.785	Summit.	9 19	23.870	68	23.790	Summit.	9 34	23.870	69	23.788	Summit.	9 49	23.870	68	23.790
Base		27.223	63.5	27.129	Base		27.217	61.5	27.127	Base		27.210	61.5	27.120	Base		27.205	61	27.116
Summit	9 5	23.865	68	23.785	Summit.	9 20	23.870	68	23.790	Summit.	9 35	23.870	69	23.788	Summit.	9 50	23.870	68	23.790
Base		27.222	63.5	27.128	Base		27.217	61.5	27.127	Base		27.209	61.5	27.119	Base		27.207	61	27.118
Summit	9 6	23.870	68	23.790	Summit.	9 21	23.870	68	23.790	Summit.	9 36	23.870	69	23.788	Summit.	9 51	23.870	68	23.790
Base		27.222	63.5	27.128	Base		27.214	61.5	27.124	Base		27.209	61.5	27.119	Base		27.207	61	27.118
Summit	9 7	23.870	68	23.790	Summit.	9 22	23.870	68	23.790	Summit.	9 37	23.870	69	23.788	Summit.	9 52	23.870	68	23.790
Base		27.225	63.5	27.131	Base		27.215	61.5	27.125	Base		27.209	61.5	27.119	Base		27.205	61	27.116
Summit	9 8	23.870	68	23.790	Summit.	9 23	23.870	68.5	23.789	Summit.	9 38	23.870	69	23.788	Summit.	9 53	23.865	68	23.785
Base		27.221	63	27.128	Base		27.217	61.5	27.127	Base		27.209	61	27.120	Base		27.203	61	27.114
Summit	9 9	23.870	68.5	23.789	Summit.	9 24	23.870	68.5	23.789	Summit.	9 39	23.870	69	23.788	Summit.	9 54	23.865	67.5	23.786
Base		27.221	63	27.128	Base		27.215	62	27.124	Base		27.210	61	27.121	Base		27.207	61	27.118
Summit	9 10	23.870	68.5	23.789	Summit.	9 25	23.870	68.5	23.789	Summit.	9 40	23.870	69	23.788	Summit.	9 55	23.865	67.5	23.786
Base		27.220	63	27.127	Base		27.214	62	27.123	Base		27.210	61	27.121	Base		27.203	61	27.114
Summit	9 11	23.870	68.5	23.789	Summit.	9 26	23.870	68.5	23.789	Summit.	9 41	23.870	69	23.788	Summit.	9 56	23.865	67.5	23.786
Base		27.220	62.5	27.128	Base		27.213	61.5	27.123	Base		27.209	61	27.120	Base		27.203	61	27.114
Summit	9 12	23.870	68.5	23.789	Summit.	9 27	23.870	68.5	23.789	Summit.	9 42	23.870	69	23.788	Summit.	9 57	23.865	67	23.787
Base		27.220	62	27.129	Base		27.213	61.5	27.123	Base		27.208	61	27.119	Base		27.202	61	27.113
Summit	9 13	23.870	68.5	23.789	Summit.	9 28	23.870	69	23.788	Summit.	9 43	23.870	68.5	23.789	Summit.	9 58	23.865	67	23.787
Base		27.220	62	27.129	Base		27.213	61.5	27.123	Base		27.207	61	27.118	Base		27.202	61	27.113
Summit	9 14	23.870	68.5	23.789	Summit.	9 29	23.870	69	23.788	Summit.	9 44	23.870	68.5	23.789	Summit.	9 59	23.865	67	23.787
Base		27.219	62	27.128	Base		27.212	61.5	27.122	Base		27.208	61	27.119	Base		27.202	61	27.113

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 30, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Summit	9 0	23.880	66	23.805
Base		27.436	56	27.358
Summit	9 1	23.890	66.5	23.804
Base		27.436	57	27.356
Summit	9 2	23.880	66.5	23.804
Base		27.438	57.5	27.357
Summit	9 3	23.885	67	23.807
Base		27.437	58	27.354
Summit	9 4	23.880	67	23.807
Base		27.436	58	27.356
Summit	9 5	23.885	67	23.807
Base		27.438	58	27.355
Summit	9 6	23.883	67.5	23.804
Base		27.436	58	27.353
Summit	9 7	23.885	68	23.805
Base		27.438	58	27.355
Summit	9 8	23.885	68	23.805
Base		27.438	58	27.355
Summit	9 9	23.885	68	23.805
Base		27.438	58	27.355
Summit	9 10	23.885	68	23.805
Base		27.438	58	27.355
Summit	9 11	23.880	67.5	23.811
Base		27.440	58	27.357
Summit	9 12	23.880	67.5	23.811
Base		27.439	58	27.356
Summit	9 13	23.880	67.5	23.811
Base		27.439	58	27.356
Summit	9 14	23.880	67.5	23.811
Base		27.439	58	27.356
Summit	9 15	23.880	67.5	23.811
Base		27.438	58	27.355
Summit	9 16	23.890	67.5	23.811
Base		27.439	58	27.356
Summit	9 17	23.880	66	23.815
Base		27.440	58	27.357
Summit	9 18	23.890	66	23.815
Base		27.439	58	27.356
Summit	9 19	23.890	66	23.815
Base		27.440	58	27.357
Summit	9 20	24.890	66	23.815
Base		27.440	58	27.357
Summit	9 21	23.890	66	23.815
Base		27.440	58	27.357
Summit	9 22	23.890	66	23.815
Base		27.442	58	27.359
Summit	9 23	23.880	66	23.815
Base		27.441	58	27.358
Summit	9 24	23.880	66	23.815
Base		27.441	58	27.358
Summit	9 25	23.890	66	23.815
Base		27.442	58	27.359
Summit	9 26	23.895	68	23.815
Base		27.442	58	27.359
Summit	9 27	23.895	68	23.815
Base		27.441	58	27.358
Summit	9 28	23.895	68	23.815
Base		27.441	58	27.358
Summit	9 29	23.895	68	23.815
Base		27.442	58	27.359
Summit	9 30	23.895	68	23.815
Base		27.441	58	27.358
Summit	9 31	23.895	68	23.815
Base		27.442	58	27.359
Summit	9 32	23.895	69	23.813
Base		27.442	58	27.359
Summit	9 33	23.900	70	23.816
Base		27.442	58	27.359
Summit	9 34	23.900	70	23.816
Base		27.443	58	27.360
Summit	9 35	23.900	70	23.816
Base		27.443	57.5	27.360
Summit	9 36	23.900	70	23.816
Base		27.443	57.5	27.361
Summit	9 37	23.900	70	23.816
Base		27.446	57.5	27.364
Summit	9 38	23.900	70	23.812
Base		27.447	57.5	27.365
Summit	9 39	23.900	70	23.812
Base		27.446	57.5	27.366
Summit	9 40	23.900	72	23.812
Base		27.446	57.5	27.364
Summit	9 41	23.900	72	23.812
Base		27.447	57.5	27.365
Summit	9 42	23.900	72	23.812
Base		27.446	57.5	27.366
Summit	9 43	23.905	72	23.817
Base		27.446	57.5	27.364
Summit	9 44	23.905	72	23.817
Base		27.446	57.5	27.366
Summit	9 45	23.905	73	23.815
Base		27.448	57.5	27.366
Summit	9 46	23.905	73	23.815
Base		27.448	57.5	27.366
Summit	9 47	23.905	73	23.815
Base		27.449	57	27.368
Summit	9 48	23.905	73	23.815
Base		27.449	57	27.368
Summit	9 48	23.905	73	23.815
Base		27.449	57	27.368
Summit	9 50	23.905	73	23.817
Base		27.449	57	27.369
Summit	9 51	23.905	73	23.817
Base		27.449	57	27.368
Summit	9 53	23.905	73	23.817
Base		27.449	57	27.368
Summit	9 53	23.905	73	23.817
Base		27.450	57	27.369
Summit	9 54	23.905	73	23.817
Base		27.450	57	27.369
Summit	9 55	23.905	73	23.817
Base		27.450	57	27.369
Summit	9 56	23.905	73	23.817
Base		27.450	57	27.369
Summit	9 57	23.905	73	23.817
Base		27.453	57	27.372
Summit	9 58	23.905	73	23.817
Base		27.456	57	27.377
Summit	9 59	23.905	73	23.817
Base		27.456	57	27.376

(Minute barometrical observations.)

NOTE.—Elevation of barometer at summit above sea-level, 6,985.4 feet. Elevation of barometer at base above sea-level, 2,484.3 feet. Barometer readings corrected for temperature and instrumental error only.

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(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					*p. m.*					*p. m.*					*p. m.*			
Summit	9 0	24.080	63	24.011	Summit.	9 15	24.080	61	24.015	Summit.	9 30	24.080	60	24.017	Summit.	9 45	24.075	60	24.012
Base		27.551	60	27.464	Base		27.551	60	27.464	Base		27.549	60	27.462	Base		27.550	59.5	27.464
Summit	9 1	24.080	63	24.011	Summit.	9 16	24.080	61	24.015	Summit.	9 31	24.080	60	24.017	Summit	9 46	24.075	60	24.012
Base		27.551	60	27.464	Base		27.552	60	27.465	Base		27.549	60	27.462	Base		27.549	59.5	27.463
Summit	9 2	24.080	63	24.011	Summit.	9 17	24.080	61	24.015	Summit.	9 32	24.080	60	24.017	Summit.	9 47	24.075	60	24.012
Base		27.550	60	27.463	Base		27.553	60	27.466	Base		27.549	60	27.462	Base		27.548	59.5	27.462
Summit	9 3	24.080	63	24.011	Summit.	9 18	24.080	61	24.015	Summit.	9 33	24.080	60	24.017	Summit.	9 48	24.075	60	24.012
Base		27.552	60	27.465	Base		27.551	60	27.464	Base		27.550	60	27.463	Base		27.549	59.5	27.463
Summit	9 4	24.080	63	24.011	Summit.	9 19	24.080	61	24.015	Summit.	9 34	24.080	60	24.017	Summit.	9 49	24.075	60	24.012
Base		27.552	60	27.465	Base		27.550	60	27.463	Base		27.550	60	27.463	Base		27.548	59.5	27.462
Summit	9 5	24.080	63	24.011	Summit.	9 20	24.080	61	24.015	Summit.	9 35	24.080	60	24.017	Summit.	9 50	24.075	60	24.012
Base		27.553	60	27.466	Base		27.550	60	27.463	Base		27.549	60	27.462	Base		27.548	59.5	27.462
Summit	9 6	24.080	62	24.013	Summit.	9 21	24.080	61	24.015	Summit.	9 36	24.080	60	24.017	Summit.	9 51	24.075	60	24.012
Base		27.552	60	27.465	Base		27.550	60	27.463	Base		27.549	60	27.462	Base		27.548	59.5	27.462
Summit	9 7	24.080	62	24.013	Summit	9 22	24.080	60	24.017	Summit.	9 37	24.080	60	24.017	Summit.	9 52	24.075	60	24.012
Base		37.552	60	27.465	Base		27.549	60	27.462	Base		27.549	60	27.462	Base		27.547	59.5	27.461
Summit	9 8	24.080	62	24.013	Sumuit.	9 23	24.080	60	24.017	Summit	9 38	24.080	60	24.017	Summit	9 53	24.075	60	24.012
Base		27.552	60	27.465	Base		27.550	60	27.463	Base		27.549	60	27.462	Base		27.549	59.5	27.463
Summit	9 9	24.080	62	24.013	Summit.	9 24	24.080	60	24.017	Summit.	9 39	24.080	60	24.017	Summit	9 54	24.075	60	24.012
Base		27.552	60	27.465	Base		27.549	60	27.462	Base		27.549	60	27.462	Base		27.549	59.5	27.463
Summit	9 10	24.078	61	24.013	Summit.	9 25	24.080	60	24.017	Summit.	9 40	24.080	60	24.017	Summit.	9 55	24.075	60	24.012
Base		27.552	60	27.465	Base		27.549	60	27.462	Base		27.548	60	27.461	Base		27.549	59.5	27.463
Summit	9 11	24.078	61	24.013	Summit.	9 26	24.080	60	24.017	Summit.	9 41	24.080	60	24.017	Summit.	9 56	24.075	60	24.012
Base		27.554	60	27.467	Base		27.549	60	27.462	Base		27.548	59.5	27.462	Base		27.549	59.5	27.463
Summit	9 12	24.078	61	24.013	Summit.	9 27	24.080	60	24.017	Summit	9 42	24.075	60	24.012	Summit.	9 57	24.075	60	24.012
Base		27.552	60	27.465	Base		27.549	60	27.462	Base		27.549	59.5	27.463	Base		27.550	59	27.465
Summit	9 13	24.080	61	24.015	Summit.	9 28	24.080	60	24.017	Summit.	9 43	24.075	60	24.012	Summit.	9 58	24.075	60	24.012
Base		27.552	60	27.465	Base		27.549	60	27.462	Base		27.549	59.5	27.463	Base		27.549	59	27.464
Summit	9 14	24.080	61	24.015	Summit.	9 29	24.080	60	24.017	Summit.	9 44	24.075	60	24.012	Summit.	9 59	24.075	60	24.012
Base		27.551	60	27.464	Base		27.549	60	27.462	Base		27.550	59.5	27.464	Base		27.549	59	27.464

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 24, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Summit	9 0	23.580	62	23.513
Base		27.018	63	26.925
Summit	9 1	23.580	62	23.513
Base		27.018	63.5	26.924
Summit	9 2	23.570	62	23.503
Base		27.018	63.5	26.924
Summit	9 3	23.570	62	23.503
Base		27.018	63.5	26.924
Summit	9 4	23.560	63	23.493
Base		27.018	63.5	26.924
Summit	9 5	23.563	62	23.495
Base		27.018	64	26.922
Summit	9 6	23.565	63	23.498
Base		27.018	64	26.922
Summit	9 7	23.565	62	23.498
Base		27.019	65	26.921
Summit	9 8	23.563	62	23.496
Base		27.019	65	26.921
Summit	9 9	23.565	63	23.498
Base		27.019	65	26.921
Summit	9 10	23.563	63	23.496
Base		27.019	65	26.921
Summit	9 11	23.563	63	23.496
Base		27.019	65	26.921
Summit	9 12	23.563	63	23.496
Base		27.020	64.5	26.923
Summit	9 13	23.560	64	23.493
Base		27.020	64.5	26.923
Summit	9 14	23.560	63.5	23.493
Base		27.020	64.5	26.923
Summit	9 15	23.560	62.5	23.492
Base		27.020	64.5	26.923
Summit	9 16	23.535	64.5	23.488
Base		27.020	64.5	26.923
Summit	9 17	23.535	63	23.488
Base		27.019	64	26.923
Summit	9 18	23.560	62	23.493
Base		27.019	64	26.923
Summit	9 19	23.570	62.5	23.502
Base		27.019	64	26.923
Summit	9 20	23.570	62.5	23.502
Base		27.019	64	26.923
Summit	9 21	23.570	62.5	23.502
Base		27.019	64	26.923
Summit	9 22	23.570	62.5	23.502
Base		27.019	64	26.923
Summit	9 23	23.565	63	23.496
Base		27.019	64	26.923
Summit	9 24	23.565	63	23.496
Base		27.019	64	26.923
Summit	9 25	23.565	63	23.496
Base		27.019	64	26.923
Summit	9 26	23.570	63	23.501
Base		27.019	64	26.923
Summit	9 27	23.570	63	23.501
Base		27.019	64	26.923
Summit	9 28	23.565	63	23.496
Base		27.019	64	26.923
Summit	9 29	23.560	63	23.491
Base		27.020	64	26.924
Summit	9 30	23.555	63	23.486
Base		27.020	64	26.924
Summit	9 31	23.560	64	23.491
Base		27.020	64	26.924
Summit	9 32	23.560	63	23.491
Base		27.020	64	26.924
Summit	9 33	23.560	63.5	23.490
Base		27.020	64	26.924
Summit	9 34	23.560	63.5	23.490
Base		27.020	64	26.924
Summit	9 35	23.560	63.5	23.490
Base		27.020	64	26.924
Summit	9 36	23.560	63.5	23.490
Base		27.020	64	26.924
Summit	9 37	23.560	64	23.489
Base		27.020	64	26.924
Summit	9 38	23.560	64	23.489
Base		27.020	64	26.924
Summit	9 39	23.550	64	23.479
Base		27.020	64	26.924
Summit	9 40	23.550	64	23.479
Base		27.020	64	26.924
Summit	9 41	23.550	64	23.479
Base		27.020	64	26.924
Summit	9 42	23.550	63.5	23.479
Base		27.020	63.5	26.925
Summit	9 43	23.550	64	23.479
Base		27.020	63.5	26.925
Summit	9 44	23.550	64	23.479
Base		27.020	63.5	26.925
Summit	9 45	23.550	64	23.479
Base		27.019	63.5	26.924
Summit	9 46	23.550	64	23.479
Base		27.019	63.5	26.924
Summit	9 47	23.550	64	23.478
Base		27.019	63.5	26.924
Summit	9 48	23.550	64.5	23.478
Base		27.019	63.5	26.924
Summit	9 49	23.550	65	23.477
Base		27.019	63.5	26.924
Summit	9 50	23.555	65	23.482
Base		27.019	63.5	26.924
Summit	9 51	23.553	66	23.480
Base		27.019	63.5	26.924
Summit	9 52	23.560	66	23.485
Base		27.019	63	26.926
Summit	9 53	23.560	65	23.485
Base		27.019	63	26.926
Summit	9 54	23.565	66	23.490
Base		27.019	63	26.926
Summit	9 55	23.565	66	23.490
Base		27.019	63	26.926
Summit	9 56	23.565	67	23.487
Base		27.019	63	26.926
Summit	9 57	23.565	67	23.487
Base		27.019	63	26.926
Summit	9 58	23.565	67	23.487
Base		27.019	63	26.926
Summit	9 59	23.565	67	23.487
Base		27.019	63	26.926

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,684.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 25, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					*p. m.*					*p. m.*					*p. m.*			
Summit	9 0	24.001	73	23.911	Summit.	9 15	24.007	73.5	23.916	Summit.	9 30	24.011	72	23.923	Summit.	9 45	24.007	71.5	23.920
Base...		27.349	65	27.250	Base....		27.349	65	27.250	Base....		27.349	64.5	27.251	Base....		27.349	63.5	27.253
Summit	9 1	24.001	73	23.911	Summit.	9 16	24.007	73.5	23.916	Summit.	9 31	24.011	72	23.923	Summit.	9 46	24.007	71.5	23.920
Base...		27.349	65	27.250	Base...		27.349	65	27.250	Base....		27.349	64	27.252	Base....		27.349	63	27.255
Summit	9 2	24.003	73	23.913	Summit.	9 17	24.010	73.5	23.919	Summit.	9 32	24.011	72.5	23.922	Summit.	9 47	24.010	71	23.924
Base...		27.349	65	27.250	Base....		27.349	65	27.250	Base....		27.349	64	27.252	Base....		27.349	63	27.255
Summit	9 3	24.001	73	23.911	Summit.	9 18	24.010	73	23.920	Summit.	9 33	24.011	72.5	23.922	Summit.	9 48	24.006	71	23.920
Base...		27.349	65	27.250	Base....		27.349	64.5	27.251	Base....		27.349	64	27.252	Base....		27.349	63	27.255
Summit	9 4	24.001	73	23.911	Summit.	9 19	24.009	73	23.919	Summit.	9 34	24.013	72.5	23.924	Summit.	9 49	24.009	71	23.923
Base...		27.349	65	27.250	Base....		27.349	64.5	27.251	Base....		27.349	64	27.252	Base....		27.349	63	27.255
Summit	9 5	24.000	73	23.910	Summit.	9 20	24.010	73	23.920	Summit.	9 35	24.013	72.5	23.924	Summit.	9 50	24.009	71	23.923
Base...		27.349	65	27.250	Base...		27.349	64.5	27.251	Base....		27.349	64	27.252	Base....		27.349	63	27.255
Summit	9 6	24.000	73	23.910	Summit.	9 21	24.008	73	23.918	Summit.	9 36	24.010	72.5	23.921	Summit.	9 51	24.009	71	23.923
Base...		27.349	65	27.250	Base....		27.349	64.5	27.251	Base....		27.349	64	27.252	Base....		27.349	63	27.255
Summit	9 7	24.002	73	23.912	Summit.	9 22	24.008	73	23.918	Summit.	9 37	24.012	72.5	23.923	Summit.	9 52	24.009	71.5	23.922
Base...		27.349	65	27.250	Base....		27.349	64.5	27.251	Base....		27.349	64	27.252	Base....		27.349	63	27.255
Summit	9 8	24.002	73	23.912	Summit.	9 23	24.008	73	23.918	Summit	9 38	24.009	72.5	23.920	Summit.	9 53	24.009	71.5	23.922
Base...		27.349	65	27.250	Base....		27.349	64.5	27.251	Base....		27.349	63.5	27.253	Base....		27.349	63	27.255
Summit	9 9	24.002	73	23.912	Summit.	9 24	24.008	73	23.918	Summit.	9 39	24.013	72.5	23.924	Summit.	9 54	24.009	72.5	23.920
Base...		27.349	65	27.250	Base....		27.349	64.5	27.251	Base ...		27.349	63.5	27.253	Base....		27.349	63	27.255
Summit	9 10	24.006	73	23.916	Summit.	9 25	24.011	72.5	23.922	Summit.	9 40	24.013	72.5	23.924	Summit.	9 55	24.011	72.5	23.922
Base...		27.349	65	27.250	Base....		27.349	64.5	27.251	Base....		27.349	63.5	27.253	Base....		27.350	63	27.256
Summit	9 11	24.003	73	23.913	Summit.	9 26	24.010	72.5	23.921	Summit.	9 41	24.011	72.5	23.922	Summit.	9 56	24.011	72.5	23.922
Base...		27.349	65	27.250	Base....		27.349	64.5	27.251	Base....		27.349	63.5	27.253	Base....		27.350	63	27.256
Summit	9 12	24.007	73	23.917	Summit.	9 27	24.010	72.5	23.921	Summit.	9 42	24.006	72	23.918	Summit.	9 57	24.014	72.5	23.925
Base...		27.349	65	27.250	Base....		27.349	64.5	27.251	Base....		27.349	63.5	27.253	Base....		27.350	63	27.256
Summit	9 13	24.007	73.5	23.916	Summit.	9 28	24.011	72.5	23.922	Summit.	9 43	24.006	72	23.918	Summit.	9 58	24.014	72.5	23.925
Base...		27.349	65	27.250	Base....		27.349	64.5	27.251	Base....		27.349	63.5	27.253	Base....		27.350	63	27.256
Summit	9 14	24.007	73.5	23.916	Summit.	9 29	24.011	72	23.923	Summit.	9 44	24.005	72	23.917	Summit.	9 59	24.015	73.5	23.9.4
Base...		27.349	65	27.250	Base....		27.349	64.5	27.251	Base....		27.349	63.5	27.253	Base....		27.350	63	27.256

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 26, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					*p. m.*					*p. m.*					*p. m.*			
Summit	9 0	24.035	68	23.955	Summit.	9 15	24.035	70	23.951	Summit.	9 30	24.040	71.5	23.953	Summit.	9 45	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66.5	27.267	Base		27.370	66	27.269	Base		27.371	65	27.272
Summit	9 1	24.035	68	23.955	Summit.	9 16	24.035	70.5	23.950	Summit.	9 31	24.040	71.5	23.953	Summit.	9 46	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66.5	27.267	Base		27.370	66	27.269	Base		27.371	65	27.272
Summit	9 2	24.035	68	23.955	Summit.	9 17	24.035	70.5	23.950	Summit.	9 32	24.040	71.5	23.953	Summit.	9 47	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66	27.269	Base		27.370	66	27.269	Base		27.371	65	27.272
Summit	9 3	24.035	68	23.955	Summit.	9 18	24.035	70.5	23.950	Summit.	9 33	24.035	71.5	23.948	Summit.	9 48	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66	27.269	Base		27.370	66	27.269	Base		27.371	65	27.272
Summit	9 4	24.032	68.5	23.951	Summit.	9 19	24.035	71	23.949	Summit.	9 34	24.035	71.5	23.948	Summit.	9 49	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66	27.269	Base		27.370	66	27.269	Base		27.371	65	27.272
Summit	9 5	24.032	68.5	23.951	Summit.	9 20	24.035	71	23.949	Summit.	9 35	24.035	72	23.948	Summit	9 50	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66	27.269	Base		27.371	66	27.270	Base		27.371	65	27.272
Summit	9 6	24.030	69	23.948	Summit.	9 21	24.035	71	23.949	Summit.	9 36	24.035	72	23.947	Summit.	9 51	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66	27.269	Base		27.371	66	27.270	Base		27.371	65	27.272
Summit	9 7	24.032	69	23.948	Summit	9 22	24.035	71	23.949	Summit.	9 37	24.035	72	23.947	Summit.	9 52	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66	27.269	Base		27.371	65.5	27.271	Base		27.371	63	27.272
Summit	9 8	24.032	69	23.948	Summit.	9 23	24.035	71	23.949	Summit.		24.035	72	23.947	Summit.	9 53	24.040	72	23.952
Base		27.370	67	27.266	Base		27.370	66	27.269	Base	9 38	27.371	65.5	27.271	Base		27.370	65	27.271
Summit	9 9	24.032	69	23.948	Summit.	9 24	24.035	71	23.949	Summit.		24.035	72	23.947	Summit.	9 54	24.035	72	23.947
Base		27.370	66.5	27.267	Base		27.370	66	27.269	Base	9 39	27.371	65.5	27.271	Base		27.370	65	27.271
Summit	9 10	24.035	69.5	23.952	Summit.	9 25	24.035	71	23.949	Summit.		24.036	72	23.948	Summit.	9 55	24.035	72	23.947
Base		27.370	66.5	27.267	Base		27.370	66	27.269	Base	9 40	27.371	65.5	27.271	Base		27.370	65	27.271
Summit	9 11	24.035	69.5	23.952	Summit.	9 26	24.035	71	23.949	Summit.		24.036	72	23.948	Summit.	9 56	24.035	72	23.947
Base		27.370	66.5	27.267	Base		27.370	66	27.269	Base	9 41	27.371	65.5	27.271	Base		27.370	65	27.271
Summit	9 12	24.035	70	23.951	Summit	9 27	24.036	71.5	23.949	Summit.		24.036	72	23.948	Summit.	9 57	24.032	72	23.944
Base		27.370	66.5	27.267	Base		27.370	66	27.269	Base	9 42	27.371	65	27.272	Base		27.370	65	27.271
Summit	9 13	24.035	70	23.951	Summit.	9 28	24.036	71.5	23.949	Summit.		24.040	72	23.952	Summit.	9 58	24.032	72	23.944
Base		27.370	66.5	27.267	Base		27.370	66	27.269	Base	9 43	27.371	65	27.272	Base		27.370	64.5	27.272
Summit	9 14	24.035	70	23.951	Summit.	9 29	24.036	71.5	23.949	Summit.		24.040	72	23.952	Summit.	9 59	24.032	72	23.944
Base		27.370	66.5	27.267	Base		27.370	66	27.269	Base	9 44	27.371	65	27.272	Base		27.370	64.5	27.272

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 27, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					*p. m.*					*p. m.*					*p. m.*			
Summit	9 0	23.874	67	23.796	Summit	9 15	23.872	69	23.790	Summit	9 30	23.869	68.5	23.788	Summit	9 45	23.869	68.5	23.788
Base		27.200	70	27.090	Base		27.200	71	27.088	Base		27.200	71	27.088	Base		27.199	70	27.089
Summit	9 1	23.874	67	23.796	Summit	9 16	23.872	69	23.790	Summit	9 31	23.871	68.5	23.790	Summit	9 46	23.872	69	23.790
Base		27.200	70	27.090	Base		27.200	71	27.088	Base		27.200	70.5	27.089	Base		27.199	70	27.089
Summit	9 2	23.872	67.5	23.793	Summit	9 17	23.871	69	23.789	Summit	9 32	23.871	68.5	23.790	Summit	9 47	23.872	69	23.790
Base		27.200	70.5	27.089	Base		27.200	71	27.088	Base		27.200	70.5	27.089	Base		27.199	70	27.089
Summit	9 3	23.872	67.5	23.793	Summit	9 18	23.871	69	23.789	Summit	9 33	23.869	68.5	23.788	Summit	9 48	23.873	69	22.790
Base		27.200	71	27.088	Base		27.200	71	27.088	Base		27.200	70.5	27.089	Base		27.199	70	27.089
Summit	9 4	23.872	67.5	23.793	Summit	9 19	23.871	69	23.789	Summit	9 34	23.869	68	23.789	Summit	9 49	23.873	69	23.790
Base		27.200	71	27.088	Base		27.200	71	27.088	Base		27.200	70.5	27.089	Base		27.199	70	27.089
Summit	9 5	23.872	67.5	23.793	Summit	9 20	23.870	69	23.788	Summit	9 35	23.868	68	23.788	Summit	9 50	23.873	69	23.790
Base		27.200	71	27.088	Base		27.200	71	27.088	Base		27.200	70.5	27.089	Base		27.199	70	27.089
Summit	9 6	23.873	68	23.793	Summit	9 21	23.870	68.5	23.789	Summit	9 36	23.868	68	23.788	Summit	9 51	23.873	69.5	23.790
Base		27.200	71	27.088	Base		27.200	71	27.088	Base		27.200	70	27.090	Base		27.199	70	27.089
Summit	9 7	23.873	68	83.793	Summit	9 22	23.870	69	23.788	Summit	9 37	23.868	68	23.788	Summit	9 52	23.870	69.5	23.790
Base		27.200	71	27.088	Base		27.200	71	27.088	Base		27.200	70	27.090	Base		27.199	70	27.089
Summit	9 8	23.872	68	23.792	Summit	9 23	23.870	69	23.788	Summit	9 38	23.868	68	23.788	Summit	9 53	23.874	69.5	23.791
Base		27.200	71	27.088	Base		27.200	71	27.088	Base		27.200	70	27.090	Base		27.199	70	27.089
Summit	9 9	23.872	68	23.792	Summit	9 24	23.870	69	23.788	Summit	9 39	23.868	68	23.788	Summit	9 54	23.874	69.5	23.791
Base		27.200	71	27.088	Base		27.200	71	27.088	Base		27.200	70	27.090	Base		27.199	70	27.089
Summit	9 10	23.873	68	23.793	Summit	9 25	23.870	69	23.788	Summit	9 40	23.870	68.5	23.789	Summit	9 55	23.872	69.5	23.789
Base		27.200	71	27.088	Base		27.200	71	27.088	Base		27.200	70	27.090	Base		27.199	70	27.089
Summit	9 11	23.873	68	23.793	Summit	9 26	23.870	69	23.788	Summit	9 41	23.868	68.5	23.787	Summit	9 56	23.870	69.5	23.787
Base		27.200	71	27.088	Base		27.200	71	27.088	Base		27.200	70	27.090	Base		27.199	70	27.089
Summit	9 12	23.873	68	23.793	Summit	9 27	23.870	69	23.788	Summit	9 42	23.873	69	23.791	Summit	9 57	23.871	69.5	23.788
Base		27.200	71	27.088	Base		27.200	71	27.088	Base		27.200	70	27.090	Base		27.199	69.5	27.090
Summit	9 13	23.872	68	23.792	Summit	9 28	23.870	69	23.788	Summit	9 43	23.870	69	23.788	Summit	9 58	23.875	70	23.791
Base		27.200	71	27.088	Base		27.200	71	27.088	Base		27.200	70	27.090	Base		27.199	69.5	27.090
Summit	9 14	23.872	68	23.792	Summit	9 29	23.870	68.5	23.789	Summit	9 44	23.870	69	23.788	Summit	9 59	23.875	70	23.791
Base		27.200	71	27.088	Base		27.200	71	27.088	Base		27.199	70	27.089	Base		27.199	69.5	27.090

NOTE.—Elevation of barometer at summit above sea-level, 6,265.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 28, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					p. m.					p. m.					p. m.			
Summit	9 0	23.710	68	23.632	Summit.	9 15	23.710	69.5	23.629	Summit.	9 30	23.715	70	23.633	Summit.	9 45	23.723	70	23.641
Base		27.138	66.5	27.097	Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	66	27.040
Summit	9 1	23.700	69	23.620	Summit.	9 16	23.705	70	23.623	Summit.	9 31	23.725	70	23.643	Summit.	9 46	23.720	70	23.639
Base		27.138	66.5	27.037	Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 2	23.710	69	23.630	Summit.	9 17	23.710	70	23.628	Summit	9 32	23.725	70	23.643	Summit.	9 47	23.720	70	23.638
Base		27.138	66.5	27.037	Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 3	23.710	69	23.630	Summit.	9 18	23.710	70	23.628	Summit.	9 33	23.725	70	23.643	Summit	9 48	23.720	70	23.638
Base		27.138	66.5	27.037	Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 4	23.710	69.5	23.629	Summit.	9 19	23.710	70	23.628	Summit	9 34	23.725	70	23.643	Summit.	9 49	23.715	70	23.633
Base		27.138	66.5	27.037	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 5	23.710	69.5	23.629	Summit.	9 20	23.710	70	23.628	Summit.	9 35	23.725	70	23.643	Summit	9 50	23.715	70	23.633
Base		27.138	66.5	27.037	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 6	23.710	69.5	23.629	Summit.	9 21	23.710	70	23.628	Summit.	9 36	23.725	70	23.643	Summit.	9 51	23.720	69.5	23.639
Base		27.138	66	27.039	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 7	23.705	70	23.623	Summit.	9 22	23.710	70	23.628	Summit.	9 37	25.725	70	23.643	Summit	9 52	23.720	69.5	23.639
Base		27.138	66	27.039	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 8	23.710	70	23.628	Summit.	9 23	23.710	70	23.628	Summit.	9 38	23.725	70	23.643	Summit.	9 53	23.720	69.5	23.639
Base		27.138	66	27.039	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 9	23.710	70	23.628	Summit.	9 24	23.720	70	23.638	Summit.	9 39	23.725	70	23.643	Summit.	9 54	23.720	69.5	23.639
Base		27.138	66	27.039	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 10	23.705	70	23.623	Summit.	9 25	23.720	70	23.638	Summit	9 40	23.725	70	23.643	Summit.	9 55	23.720	69.5	23.639
Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 11	23.705	70	23.623	Summit	9 26	23.715	70	23.633	Summit.	9 41	23.725	70	23.643	Summit.	9 56	23.720	69.5	23.639
Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 12	23.710	69.5	23.629	Summit.	9 27	23.720	70	23.638	Summit.	9 42	23.725	70	23.643	Summit.	9 57	23.720	69.5	23.639
Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 13	23.710	69.5	23.629	Summit	9 28	23.720	70	23.638	Summit.	9 43	23.725	70	23.643	Summit.	9 58	23.720	69.5	23.639
Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041
Summit	9 14	23.705	69.5	23.624	Summit.	9 29	23.720	70	23.638	Summit.	9 44	23.725	70	23.643	Summit.	9 59	23.720	69.5	23.639
Base		27.140	66	27.041	Base		27.139	66	27.040	Base		27.139	66	27.040	Base		27.139	65.5	27.041

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,838.3 feet. Barometer readings corrected for temperature and instrumental error only.

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(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					*p. m.*					*p. m.*					*p. m.*			
Summit	9 0	23.865	67	23.787	Summit.	9 15	23.870	68.5	23.789	Summit.	9 30	23.870	69	23.788	Summit.	9 45	23.870	68.5	23.789
Base		27.226	63	27.133	Base		27.218	62	27.127	Base		27.212	61.5	27.122	Base		27.208	61	27.119
Summit	9 1	23.865	67.5	23.786	Summit.	9 16	23.870	68	23.790	Summit.	9 31	23.870	69	23.788	Summit.	9 46	23.870	68.5	23.789
Base		27.226	63	27.133	Base		27.218	61.5	27.128	Base		27.212	61.5	27.122	Base		27.206	61	27.117
Summit	9 2	23.865	67.5	23.786	Summit.	9 17	23.870	68	23.790	Summit.	9 32	23.870	69	23.788	Summit.	9 47	23.870	68.5	23.789
Base		27.223	63	27.130	Base		27.215	61.5	27.125	Base		27.210	61.5	27.120	Base		27.204	61	27.115
Summit	9 3	23.865	67.5	23.786	Summit.	9 18	23.870	68	23.790	Summit.	9 33	23.870	69	23.788	Summit.	9 48	23.870	68.5	23.789
Base		27.223	63.5	27.129	Base		27.216	61.5	27.126	Base		27.210	61.5	27.120	Base		27.205	61	27.116
Summit	9 4	23.865	68	23.785	Summit.	9 19	23.870	68	23.790	Summit.	9 34	23.870	69	23.788	Summit.	9 49	23.870	68	23.790
Base		27.223	63.5	27.129	Base		27.217	61.5	27.127	Base		27.210	61.5	27.120	Base		27.205	61	27.116
Summit	9 5	23.865	68	23.785	Summit.	9 20	23.870	68	23.790	Summit.	9 35	23.870	69	23.788	Summit.	9 50	23.870	68	23.790
Base		27.222	63.5	27.128	Base		27.217	61.5	27.127	Base		27.209	61.5	27.119	Base		27.207	61	27.118
Summit	9 6	23.870	68	23.790	Summit.	9 21	23.870	68	23.790	Summit.	9 36	23.870	69	23.788	Summit.	9 51	23.870	68	23.790
Base		27.222	63.5	27.128	Base		27.214	61.5	27.124	Base		27.209	61.5	27.119	Base		27.207	61	27.118
Summit	9 7	23.870	68	23.790	Summit.	9 22	23.870	68	23.790	Summit.	9 37	23.870	69	23.788	Summit.	9 52	23.870	68	23.790
Base		27.225	63.5	27.131	Base		27.215	61.5	27.125	Base		27.209	61.5	27.119	Base		27.205	61	27.116
Summit	9 8	23.870	68	23.790	Summit.	9 23	23.870	68.5	23.789	Summit.	9 38	23.870	69	23.788	Summit.	9 53	23.865	68	23.785
Base		27.221	63	27.128	Base		27.217	61.5	27.127	Base		27.209	61	27.120	Base		27.203	61	27.114
Summit	9 9	23.870	68.5	23.789	Summit.	9 24	23.870	68.5	23.789	Summit.	9 39	23.870	69	23.788	Summit.	9 54	23.865	67.5	23.786
Base		27.221	63	27.128	Base		27.215	62	27.124	Base		27.210	61	27.121	Base		27.207	61	27.118
Summit	9 10	23.870	68.5	23.789	Summit.	9 25	23.870	68.5	23.789	Summit.	9 40	23.870	69	23.788	Summit.	9 55	23.865	67.5	23.786
Base		27.220	63	27.127	Base		27.214	62	27.123	Base		27.210	61	27.121	Base		27.203	61	27.114
Summit	9 11	23.870	68.5	23.789	Summit.	9 26	23.870	68.5	23.789	Summit.	9 41	23.870	69	23.788	Summit.	9 56	23.865	67.5	23.786
Base		27.220	62.5	27.128	Base		27.213	61.5	27.123	Base		27.209	61	27.120	Base		27.203	61	27.114
Summit	9 12	23.870	68.5	23.789	Summit.	9 27	23.870	68.5	23.789	Summit.	9 42	23.870	69	23.788	Summit.	9 57	23.865	67	23.787
Base		27.220	62	27.129	Base		27.213	61.5	27.123	Base		27.208	61	27.119	Base		27.202	61	27.113
Summit	9 13	23.870	68.5	23.789	Summit.	9 28	23.870	69	23.788	Summit.	9 43	23.870	68.5	23.789	Summit.	9 58	23.865	67	23.787
Base		27.220	62	27.129	Base		27.213	61.5	27.123	Base		27.207	61	27.118	Base		27.202	61	27.113
Summit	9 14	23.870	68.5	23.789	Summit.	9 29	23.870	69	23.788	Summit.	9 44	23.870	66.5	23.789	Summit.	9 59	23.865	67	23.787
Base		27.219	62	27.128	Base		27.212	61.5	27.122	Base		27.208	61	27.119	Base		27.202	61	27.113

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for May 30, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Summit	9 0	23.890	66	23.805
Base		27.436	56	27.358
Summit	9 1	23.880	66.5	23.804
Base		27.436	57	27.356
Summit	9 2	23.880	66.5	23.804
Base		27.439	57.5	27.357
Summit	9 3	23.885	67	23.807
Base		27.437	58	27.354
Summit	9 4	23.880	67	23.807
Base		27.439	58	27.356
Summit	9 5	23.885	67	23.807
Base		27.438	58	27.355
Summit	9 6	23.883	67.5	23.804
Base		27.436	58	27.353
Summit	9 7	23.885	68	23.805
Base		27.434	58	27.355
Summit	9 8	23.885	68	23.805
Base		27.438	58	27.355
Summit	9 9	23.885	68	23.805
Base		27.438	58	27.355
Summit	9 10	23.885	68	23.805
Base		27.438	58	27.355
Summit	9 11	23.890	67.5	23.811
Base		27.440	58	27.357
Summit	9 12	23.890	67.5	23.811
Base		27.439	58	27.356
Summit	9 13	23.890	67.5	23.811
Base		27.439	58	27.356
Summit	9 14	23.890	67.5	23.811
Base		27.439	58	27.356
Summit	9 15	23.890	67.5	23.811
Base		27.438	58	27.355
Summit	9 16	23.890	67.5	23.811
Base		27.439	58	27.356
Summit	9 17	23.890	66	23.811
Base		27.440	58	27.357
Summit	9 18	23.890	66	23.811
Base		27.439	58	27.356
Summit	9 19	23.890	66	23.811
Base		27.440	58	27.357
Summit	9 20	24.890	66	23.815
Base		27.440	58	27.357
Summit	9 21	23.890	66	23.815
Base		27.440	58	27.357
Summit	9 22	23.890	66	23.815
Base		27.442	58	27.359
Summit	9 23	23.890	66	23.815
Base		27.441	58	27.358
Summit	9 24	23.890	66	23.815
Base		27.441	58	27.358
Summit	9 25	23.890	66	23.815
Base		27.442	58	27.359
Summit	9 26	23.895	68	23.815
Base		27.442	58	27.359
Summit	9 27	23.895	68	23.815
Base		27.441	58	27.358
Summit	9 28	23.895	68	23.815
Base		27.441	58	27.358
Summit	9 29	23.895	68	23.815
Base		27.442	58	27.359
Summit	9 30	23.895	68	23.815
Base		27.441	58	27.358
Summit	9 31	23.895	68	23.815
Base		27.442	58	27.359
Summit	9 32	23.895	69	23.813
Base		27.442	58	27.359
Summit	9 33	23.900	70	23.816
Base		27.442	58	27.359
Summit	9 34	23.900	70	23.816
Base		27.443	58	27.360
Summit	9 35	23.900	70	23.816
Base		27.443	57.5	27.360
Summit	9 36	23.900	70	23.816
Base		27.433	57.5	27.361
Summit	9 37	23.900	70	23.816
Base		27.446	57.5	27.364
Summit	9 39	23.900	72	23.819
Base		27.447	57.5	27.365
Summit	9 39	23.900	72	23.819
Base		27.448	57.5	27.366
Summit	9 40	23.900	72	23.819
Base		27.446	57.5	27.364
Summit	9 41	23.900	73	23.819
Base		27.447	57.5	27.365
Summit	9 42	23.900	73	23.819
Base		27.448	57.5	27.366
Summit	9 43	23.905	72	23.817
Base		27.446	57.5	27.364
Summit	9 44	23.905	73	23.817
Base		27.444	57.5	27.366
Summit	9 45	23.905	73	23.815
Base		27.448	57.5	27.366
Summit	9 46	23.905	73	23.815
Base		27.448	57.5	27.366
Summit	9 47	23.905	73	23.815
Base		27.449	57	27.368
Summit	9 48	23.905	73	23.815
Base		27.449	57	27.368
Summit	9 48	23.905	73	23.815
Base		27.449	57	27.368
Summit	9 50	23.905	73	23.817
Base		27.449	57	27.368
Summit	9 51	23.905	73	23.817
Base		27.449	57	27.368
Summit	9 53	23.905	73	23.817
Base		27.449	57	27.368
Summit	9 53	23.905	73	23.817
Base		27.450	57	27.369
Summit	9 54	23.905	73	23.817
Base		27.450	57	27.369
Summit	9 55	23.905	73	23.817
Base		27.450	57	27.369
Summit	9 56	23.905	73	23.817
Base		27.450	57	27.369
Summit	9 57	23.905	73	23.817
Base		27.453	57	27.372
Summit	9 58	23.905	72	23.817
Base		27.450	57	27.377
Summit	9 59	23.905	73	23.817
Base		27.439	57	27.374

NOTE.—Elevation of barometer at summit above sea-level, 11,285.4 feet. Elevation of barometer at base above sea-level, 2,494.3 feet. Barometer readings corrected for temperature and instrumental error only.

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(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					*p. m.*					*p. m.*					*p. m.*			
Summit	9 0	24.080	63	24.011	Summit.	9 15	24.080	61	24.015	Summit.	9 30	24.080	60	24.017	Summit.	9 45	24.075	60	24.012
Base...		27.551	60	27.464	Base....		27.551	60	27.464	Base....		27.549	60	27.462	Base....		27.550	59.5	27.464
Summit	9 1	24.080	63	24.011	Summit.	9 16	24.080	61	24.015	Summit.	9 31	24.080	60	24.017	Summit.	9 46	24.075	60	24.012
Base..		27.551	60	27.464	Base....		27.552	60	27.465	Base....		27.549	60	27.462	Base....		27.549	59.5	27.463
Summit	9 2	24.080	63	24.011	Summit.	9 17	24.080	61	24.015	Summit.	9 32	24.080	60	24.017	Summit.	9 47	24.075	60	24.012
Base...		27.550	60	27.463	Base....		27.553	60	27.466	Base....		27.549	60	27.462	Base....		27.548	59.5	27.462
Summit	9 3	24.080	63	24.011	Summit.	9 18	24.080	61	24.015	Summit.	9 33	24.080	60	24.017	Summit.	9 48	24.075	60	24.012
Base...		27.552	60	27.465	Base....		27.551	60	27.464	Base....		27.550	60	27.463	Base....		27.549	59.5	27.463
Summit	9 4	24.080	63	24.011	Summit.	9 19	24.080	61	24.015	Summit.	9 34	24.080	60	24.017	Summit.	9 49	24.075	60	24.012
Base...		27.552	60	27.465	Base....		27.550	60	27.463	Base....		27.550	60	27.463	Base....		27.548	59.5	27.462
Summit	9 5	24.080	63	24.011	Summit.	9 20	24.080	61	24.015	Summit.	9 35	24.080	60	24.017	Summit.	9 50	24.075	60	24.012
Base...		27.553	60	27.466	Base....		27.550	60	27.463	Base....		27.549	60	27.462	Base....		27.548	59.5	27.462
Summit	9 6	24.080	62	24.013	Summit.	9 21	24.080	61	24.015	Summit.	9 36	24.080	60	24.017	Summit.	9 51	24.075	60	24.012
Base...		27.552	60	27.465	Base....		27.550	60	27.463	Base....		27.549	60	27.462	Base....		27.548	59.5	27.462
Summit	9 7	24.080	62	24.013	Summit.	9 22	24.080	60	24.017	Summit.	9 37	24.080	60	24.017	Summit.	9 52	24.075	60	24.012
Base...		37.552	60	27.465	Base....		27.549	60	27.462	Base....		27.549	60	27.462	Base....		27.547	59.5	27.461
Summit	9 8	24.080	62	24.013	Summit.	9 23	24.080	60	24.017	Summit.	9 38	24.080	60	24.017	Summit.	9 53	24.075	60	24.012
Base...		27.552	60	27.465	Base....		27.550	60	27.463	Base....		27.549	60	27.462	Base....		27.549	59.5	27.463
Summit	9 9	24.080	62	24.013	Summit.	9 24	24.080	60	24.017	Summit.	9 39	24.080	60	24.017	Summit.	9 54	24.075	60	24.012
Base...		27.552	60	27.465	Base....		27.549	60	27.462	Base....		27.549	60	27.462	Base....		27.549	59.5	27.463
Summit	9 10	24.078	61	24.013	Summit.	9 25	24.080	60	24.017	Summit.	9 40	24.080	60	24.017	Summit.	9 55	24.075	60	24.012
Base...		27.552	60	27.465	Base....		27.549	60	27.462	Base....		27.548	60	27.461	Base....		27.549	59.5	27.463
Summit	9 11	24.078	61	24.013	Summit.	9 26	24.080	60	24.017	Summit.	9 41	24.080	60	24.017	Summit.	9 56	24.075	60	24.012
Base...		27.554	60	27.467	Base....		27.549	60	27.462	Base...		27.548	59.5	27.462	Base....		27.549	59.5	27.463
Summit	9 12	24.078	61	24.013	Summit.	9 27	24.080	60	24.017	Summit	9 42	24.075	60	24.012	Summit.	9 57	24.075	60	24.012
Base...		27.552	60	27.465	Base....		27.549	60	27.462	Base....		27.549	59.5	27.463	Base....		27.550	59	27.465
Summit	9 13	24.080	61	24.015	Summit.	9 28	24.080	60	24.017	Summit.	9 43	24.075	60	24.012	Summit.	9 58	24.075	60	24.012
Base...		27.552	60	27.465	Base....		27.549	60	27.462	Base....		27.549	59.5	27.463	Base....		27.549	59	27.464
Summit	9 14	24.080	61	24.015	Summit.	9 29	24.080	60	24.017	Summit.	9 44	24.075	60	24.012	Summit.	9 59	24.075	60	24.012
Base...		27.551	60	27.464	Base....		27.549	60	27.462	Base....		27.550	59.5	27.464	Base....		27.549	59	27.464

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

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Meteorological record for June 1, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.			
Station 1	8 0	23.973	69	23.890
2		24.704	65	24.650
3		26.190	62.5	26.169
4		27.458	58	27.395
Station 1	8 1	23.973	69	23.890
2		24.703	65	24.649
3		26.190	62.5	26.169
4		27.457	58.5	27.393
Station 1	8 2	23.972	69	23.890
2		24.703	65	24.649
3		26.190	62.5	26.169
4		27.457	58.5	27.393
Station 1	8 3	23.972	68.5	23.891
2		24.690	64.5	24.639
3		26.190	63	26.167
4		27.457	58.5	27.393
Station 1	8 4	23.973	68.5	23.891
2		24.700	64	24.650
3		26.190	63	26.167
4		27.457	58.5	27.394
Station 1	8 5	23.972	68.5	23.891
2		24.700	64	24.650
3		26.190	63	26.167
4		27.458	58.5	27.394
Station 1	8 6	23.973	68.5	23.891
2		24.700	64	24.650
3		26.190	63	26.167
4		27.459	58.5	27.395
Station 1	8 7	23.973	68.5	23.891
2		24.700	64	24.650
3		26.190	63	26.167
4		27.459	58.5	27.395
Station 1	8 8	23.973	68.5	23.891
2		24.700	64	24.650
3		26.190	63	26.167
4		27.459	58.5	27.395
Station 1	8 15	23.975	68	23.895
2		24.703	66	24.649
3		26.190	63.5	26.166
4		27.458	58	27.389
Station 1	8 16	23.975	68	23.895
2		24.703	66	24.649
3		26.190	64	26.165
4		27.451	58	27.388
Station 1	8 17	23.974	67.5	23.895
2		24.700	66.5	24.645
3		26.195	64	26.170
4		27.452	58	27.390
Station 1	8 18	23.965	68	23.885
2		24.703	67	24.647
3		26.195	64	26.170
4		27.451	58	27.394
Station 1	8 19	23.965	68	23.885
2		24.703	67	24.647
3		26.197	64.5	26.171
4		27.450	58	27.387
Station 1	8 20	23.965	68	23.885
2		24.701	68	24.642
3		26.190	64.5	26.164
4		27.450	59	27.387
Station 1	8 21	23.970	68	23.890
2		24.703	66.5	24.643
3		26.190	64.5	26.164
4		27.450	58	27.387
Station 1	8 22	23.970	68	23.890
2		24.704	66	24.645
3		26.190	65	26.168
4		27.449	58	27.389
Station 1	8 23	23.970	68	23.890
2		24.703	66	24.643
3		26.190	65	26.169
4		27.450	57.5	27.394
Station 1	8 30	23.973	67.5	23.894
2		24.704	70	24.641
3		26.190	65	26.162
4		27.447	58	27.394
Station 1	8 31	23.973	67.5	23.894
2		24.703	70.5	24.639
3		26.190	65	26.162
4		27.448	58	27.385
Station 1	8 32	23.970	67.5	23.891
2		24.704	70.5	24.640
3		26.189	65	26.161
4		27.447	58	27.394
Station 1	8 33	23.990	67.5	23.911
2		24.702	70.5	24.638
3		26.189	65	26.161
4		27.447	58	27.394
Station 1	8 34	23.990	67.5	23.911
2		24.702	71	24.637
3		26.190	65.5	26.161
4		27.445	58	27.382
Station 1	8 35	23.968	67.5	23.889
2		24.701	70.5	24.637
3		26.193	65.5	26.164
4		27.446	58	27.383
Station 1	8 36	23.968	67.5	23.889
2		24.703	70	24.640
3		26.193	65.5	26.164
4		27.445	58	27.382
Station 1	8 37	23.968	67.5	23.889
2		24.702	70	24.639
3		26.195	65.5	26.165
4		27.446	58	27.383
Station 1	8 38	23.960	67	23.882
2		24.700	69.5	24.634
3		26.190	65.5	26.161
4		27.447	58	27.384
Station 1	8 45	23.945	68	23.865
2		24.701	69	24.640
3		26.189	65	26.159
4		27.443	58.5	27.379
Station 1	8 46	23.945	68	23.865
2		24.700	69	24.639
3		26.189	65	26.159
4		27.443	58	27.378
Station 1	8 47	23.945	68	23.865
2		24.701	69	24.640
3		26.190	66.5	26.159
4		27.443	59	27.378
Station 1	8 48	23.945	68	23.865
2		24.700	68.5	24.640
3		26.190	67	26.158
4		27.444	59	27.379
Station 1	8 49	23.955	68.5	23.874
2		24.690	68.5	24.630
3		26.190	67	26.159
4		27.443	59	27.378
Station 1	8 50	23.955	68.5	23.874
2		24.701	68	24.643
3		26.189	67	26.157
4		27.446	59	27.381
Station 1	8 51	23.950	68.5	23.869
2		24.700	68	24.642
3		26.189	67	26.157
4		27.446	59	27.381
Station 1	8 52	23.950	68.5	23.869
2		24.690	68	24.632
3		26.189	67	26.157
4		27.444	58.5	27.379
Station 1	8 53	23.950	68	23.870
2		24.700	67	24.644
3		26.189	66.5	26.154
4		27.440	60	27.379

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| Station | | |

Meteorological record for June 2, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.			
Station 1	8 0	23.905	67.5	23.896
2		24.649	53	24.633
3		26.170	51	26.129
4		27.447	55	27.392
Station 1	8 1	23.900	53.5	23.892
2		24.651	54	24.624
3		26.170	51	26.130
4		27.447	55	27.392
Station 1	8 2	23.900	57	23.892
2		24.653	54	24.625
3		26.170	51	26.129
4		27.447	55	27.392
Station 1	8 3	23.900	57	23.892
2		24.650	55.5	24.620
3		26.170	51	26.129
4		27.448	55	27.393
Station 1	8 4	23.897	57	23.817
2		24.650	55.5	24.619
3		26.170	51	26.129
4		27.448	55	27.393
Station 2	8 5	23.905	57	23.817
3		24.650	55.5	24.619
4		26.170	50.5	26.130
Station 1		27.448	53	27.393
2		23.895	57	23.817
3		24.652	56	24.620
4		26.170	50	26.131
Station 1	8 7	27.448	53	27.393
2		24.653	57	24.621
3		26.170	50	26.131
4		27.448	53	27.394
Station 1	8 8	23.905	57	23.817
2		24.653	56	24.624
3		26.170	50	26.134
4		27.448	53	27.394
Station 1	8 9	23.905	57	23.817
2		24.653	56	24.624
3		26.170	50	26.134
4		27.448	53	27.394
Station 1	8 10	23.905	57	23.817
2		24.653	56	24.624
3		26.170	50	26.134
4		27.448	53	27.394
Station 1	8 11	23.905	57	23.817
2		24.653	56	24.624
3		26.170	50	26.134
4		27.448	53	27.394
Station 1	8 12	23.905	57	23.817
2		24.653	56	24.624
3		26.170	50	26.134
4		27.448	53	27.394
Station 1	8 13	23.905	57	23.817
2		24.653	56	24.624
3		26.170	50	26.134
4		27.448	53	27.394
Station 1	8 14	23.905	57	23.817
2		24.653	56	24.624
3		26.170	50	26.134
4		27.448	53	27.394
Station 1	8 15	23.890	67	23.812
2		24.673	58	24.636
3		26.172	49	26.135
4		27.448	55	27.393
Station 1	8 16	23.890	67	23.812
2		24.671	58	24.634
3		26.172	49	26.135
4		27.448	55	27.393
Station 1	8 17	23.900	67	23.822
2		24.670	58	24.633
3		26.175	49	26.138
4		27.448	55	27.393
Station 1	8 18	23.900	67	23.822
2		24.669	59.5	24.629
3		26.175	48.5	26.139
4		27.448	55	27.393
Station 1	8 19	23.900	67	23.822
2		24.669	60	24.629
3		26.175	48.5	26.139
4		27.447	55	27.392
Station 1	8 20	23.900	67	23.822
2		24.670	60.5	24.626
3		26.178	48.5	26.142
4		27.447	55	27.392
Station 1	8 21	23.900	67	23.822
2		24.671	60.5	24.620
3		26.178	48	26.144
4		27.440	55	27.394
Station 1	8 22	23.900	67	23.822
2		24.680	61.5	24.625
3		26.178	48	26.144
4		27.447	55	27.392
Station 1	8 23	23.900	67	23.822
2		24.670	62.5	24.624
3		26.178	48	26.144
4		27.447	55	27.393
Station 1	8 24	23.900	67	23.822
2		24.670	62.5	24.624
3		26.178	48	26.144
4		27.447	55	27.393
Station 1	8 25	23.900	67	23.822
2		24.670	62.5	24.624
3		26.178	48	26.144
4		27.447	55	27.393
Station 1	8 26	23.900	67	23.822
2		24.670	62.5	24.624
3		26.178	48	26.144
4		27.447	55	27.393
Station 1	8 27	23.900	67	23.822
2		24.670	62.5	24.624
3		26.178	48	26.144
4		27.447	55	27.393
Station 1	8 28	23.900	67	23.822
2		24.670	62.5	24.624
3		26.178	48	26.144
4		27.447	55	27.393
Station 1	8 29	23.900	67	23.822
2		24.670	62.5	24.624
3		26.178	48	26.144
4		27.447	55	27.393
Station 1	8 30	23.890	69	23.798
2		24.650	64	24.600
3		26.175	55	26.139
4		27.449	55	27.394
Station 1	8 31	23.880	69	23.798
2		24.671	64	24.621
3		26.175	48.5	26.139
4		27.447	55	27.392
Station 1	8 32	23.905	70	23.821
2		24.669	64.5	24.618
3		26.175	48.5	26.139
4		27.448	54.5	27.394
Station 1	8 33	23.905	70	23.821
2		24.668	64.5	24.618
3		26.175	48.5	26.139
4		27.448	54.5	27.394
Station 1	8 34	23.905	70	23.821
2		24.671	65	24.619
3		26.172	48.5	26.136
4		27.444	54	27.391
Station 1	8 35	23.910	71	23.804
2		24.671	65	24.619
3		26.172	48.5	26.136
4		27.446	54	27.393
Station 1	8 36	23.890	71	23.804
2		24.650	65	24.607
3		26.172	48.5	26.136
4		27.445	54	27.392
Station 1	8 37	23.905	71	23.819
2		24.678	65	24.626
3		26.170	48.5	26.134
4		27.446	54	27.393
Station 1	8 38	23.905	71	23.819
2		24.668	65	24.615
3		26.170	48.5	26.134
4		27.447	54	27.394
Station 1	8 39	23.910	70	23.826
2		24.680	67	24.624
3		26.172	48	26.138
4		27.443	54.5	27.389
Station 1	8 40	23.910	70	23.836
2		24.659	67	24.603
3		26.172	48	26.138
4		27.446	54.5	27.392
Station 1	8 41	23.910	70	23.836
2		24.678	66.5	24.623
3		26.172	48	26.138
4		27.444	54.5	27.390
Station 1	8 42	23.920	70	23.836
2		24.681	66.5	24.626
3		26.172	48.5	26.136
4		27.446	54.5	27.392
Station 1	8 43	23.905	70	23.821
2		24.672	66.5	24.617
3		26.172	48.5	26.136
4		27.445	54.5	27.391
Station 1	8 44	23.905	70	23.821
2		24.671	66	24.617
3		26.172	49	26.135
4		27.445	54.5	27.391
Station 1	8 45	23.910	70	23.826
2		24.680	67	24.624
3		26.172	48	26.138
4		27.443	54.5	27.389
Station 1	8 46	23.910	70	23.836
2		24.659	67	24.603
3		26.172	48	26.138
4		27.446	54.5	27.392
Station 1	8 47	23.920	70	23.836
2		24.678	66.5	24.623
3		26.172	48	26.138
4		27.444	54.5	27.390
Station 1	8 48	23.920	70	23.836
2		24.681	66.5	24.626
3		26.172	48.5	26.136
4		27.446	54.5	27.392
Station 1	8 49	23.905	70	23.821
2		24.678	66	24.624
3		26.172	48.5	26.136
4		27.444	53	27.390
Station 1	8 50	23.905	70	23.821
2		24.672	66.5	24.617
3		26.172	48.5	26.136
4		27.447	55	27.392
Station 1	8 51	23.905	70	23.821
2		24.670	66	24.616
3		26.172	48.5	26.136
4		27.445	54.5	27.391
Station 1	8 52	23.905	70	23.821
2		24.671	66	24.617
3		26.172	49	26.135
4		27.445	54.5	27.391
Station 1	8 53	23.905	71	23.834
2		24.671	65.5	24.618
3		26.172	48.5	26.135
4		27.445	54	27.391

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Meteorological record for June 3, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.					a. m.					a. m.			
Station 1	8 0	24.040	62	23.973	Station 1	8 15	24.048	65	23.975	Station 1	8 30	24.048	64	23.977
2		24.738	58	24.697	2		24.738	59	24.695	2		24.733	60	24.688
3		26.225	54.5	26.175	3		26.255	52	26.211	3		26.240	52.5	26.205
4		27.502	52	27.454	4		27.504	51	27.459	4		27.502	52.5	27.453
Station 1	8 1	24.042	62	23.975	Station 1	8 16	24.048	65	23.975	Station 1	8 31	24.048	64	23.977
2		24.738	58	24.697	2		24.738	59	24.695	2		24.733	60.5	24.687
3		26.225	54	26.177	3		26.255	52	26.211	3		26.250	52.5	26.205
4		27.502	52	27.454	4		27.504	51	27.459	4		27.502	52.5	27.453
Station 1	8 2	24.042	62.5	23.974	Station 1	8 17	24.048	65	23.975	Station 1	8 32	24.048	64	23.977
2		24.738	59	24.695	2		24.738	59	24.695	2		24.733	60.5	24.687
3		26.225	54	26.177	3		26.250	52	26.206	3		26.250	52.5	26.205
4		27.502	52	27.454	4		27.504	51	27.459	4		27.501	53	27.451
Station 1	8 3	24.045	63	23.976	Station 1	8 18	24.048	65	23.975	Station 1	8 33	24.048	64	23.977
2		24.738	59	24.695	2		24.738	59	24.695	2		24.733	61	24.686
3		26.225	53.5	26.178	3		26.250	52.5	26.205	3		26.250	52.5	26.205
4		27.503	52	27.455	4		27.504	51	27.459	4		27.501	53	27.451
Station 1	8 4	24.050	64	23.979	Station 1	8 19	24.049	64.5	23.976	Station 1	8 34	24.048	64	23.977
2		24.738	59	24.695	2		24.738	59	24.695	2		24.737	61	24.690
3		26.225	53.5	26.179	3		26.250	52.5	26.205	3		26.250	52.5	26.205
4		27.502	53	27.453	4		27.504	51	27.459	4		27.501	53	27.451
Station 1	8 5	24.048	65	23.975	Station 1	8 20	24.048	64	24.977	Station 1	8 35	24.048	64	23.977
2		24.738	59	24.695	2		24.738	59	24.695	2		24.737	61.5	24.689
3		26.225	53	26.179	3		26.250	52.5	26.205	3		26.250	52.5	26.205
4		27.502	51.5	27.456	4		27.504	51	27.459	4		27.501	53	27.451
Station 1	8 6	24.049	65.5	23.975	Station 1	8 21	24.048	64	23.977	Station 1	8 36	24.048	64	23.977
2		24.738	59	24.695	2		24.738	59	24.695	2		24.737	61.5	24.689
3		26.225	53	26.179	3		26.240	52.5	26.205	3		26.240	53	26.204
4		27.505	51.5	27.458	4		27.504	51	27.459	4		27.501	53	27.451
Station 1	8 7	24.052	66	23.977	Station 1	8 22	24.048	64	23.977	Station 1	8 37	24.048	64	23.977
2		24.738	59	24.695	2		24.738	59	24.695	2		24.737	61.5	24.689
3		26.225	51	26.179	3		26.240	52.5	26.205	3		26.240	53	26.204
4		27.504	51.5	27.457	4		27.503	51.5	27.458	4		27.501	53	27.451
Station 1	8 8	24.050	66	23.975	Station 1	8 23	24.048	64	23.977	Station 1	8 38	24.048	64	23.977
2		24.738	60	24.695	2		24.738	59	24.695	2		24.737	62	24.688
3		26.225	54	26.180	3		26.240	52.5	26.205	3		26.240	53	26.204
4		27.504	52	27.456	4		27.504	51	27.459	4		27.501	53	27.451
Station 1	8 9	24.052	66	23.977	Station 1	8 24	24.048	64	23.977	Station 1	8 39	24.048	64	23.977
2		24.738	60	24.695	2		24.738	59	24.695	2		24.737	62	24.688
3		26.225	54	26.179	3		26.240	52.5	26.205	3		26.240	53	26.204
4		27.504	52	27.456	4		27.504	51	27.459	4		27.501	53	27.451
Station 1	8 10	24.052	66	23.977	Station 1	8 25	24.048	64	23.977	Station 1	8 40	24.048	64	23.977
2		24.738	60	24.695	2		24.738	59	24.695	2		24.737	62	24.688
3		26.225	54	26.179	3		26.240	52.5	26.205	3		26.240	53	26.204
4		27.504	52	27.456	4		27.504	51	27.459	4		27.501	53	27.451
Station 1	8 11	24.052	66	23.977	Station 1	8 26	24.048	64	23.977	Station 1	8 41	24.048	64	23.977
2		24.738	60	24.695	2		24.738	59	24.695	2		24.737	62	24.688
3		26.225	54	26.179	3		26.240	52.5	26.205	3		26.240	53	26.204
4		27.504	52	27.456	4		27.504	51	27.459	4		27.501	53	27.451
Station 1	8 12	24.052	66	23.977	Station 1	8 27	24.048	64	23.977	Station 1	8 42	24.048	64	23.977
2		24.738	60	24.695	2		24.738	59	24.695	2		24.737	62	24.688
3		26.225	54	26.179	3		26.240	52.5	26.205	3		26.240	53	26.204
4		27.504	52	27.456	4		27.504	51	27.459	4		27.501	53	27.451
Station 1	8 13	24.052	66	23.977	Station 1	8 28	24.048	64	23.977	Station 1	8 43	24.048	64	23.977
2		24.738	60	24.695	2		24.738	59	24.695	2		24.737	62	24.688
3		26.225	54	26.179	3		26.240	52.5	26.205	3		26.240	53	26.204
4		27.504	52	27.456	4		27.504	51	27.459	4		27.501	53	27.451
Station 1	8 14	24.052	66	23.977	Station 1	8 29	24.048	64	23.977	Station 1	8 44	24.048	64	23.977
2		24.738	60	24.695	2		24.738	59	24.695	2		24.737	62	24.688
3		26.225	54	26.179	3		26.240	52.5	26.205	3		26.240	53	26.204
4		27.504	52	27.456	4		27.504	51	27.459	4		27.501	53	27.451
Station 1	8 45	24.043	64.5	23.971	Station 1	8 46	24.043	64.5	23.971	Station 1	8 47	24.738	53.5	26.203
2		24.738	62	24.689	2		24.738	63	24.689	2		26.250	53	27.452
3		26.243	52	26.202	3		26.250	53	26.204	3		27.502	53	27.452
4		27.503	53	27.453	4		27.503	53	27.453	4		24.046	65.5	23.974
Station 1	8 48	24.048	62	23.974	Station 1	8 49	24.738	66	24.689	Station 1	8 50	24.738	66	24.689
2		26.250	53	26.203	2		26.250	53	26.203	2		26.250	54	26.202
3		27.502	53	27.452	3		27.502	53	27.452	3		27.502	53	27.452
4		24.046	66	23.973	4		24.046	66	23.973	4		24.045	66	23.970
Station 1	8 51	24.738	66	24.689	Station 1	8 52	24.738	66	24.689	Station 1	8 53	24.738	66	24.689
2		26.250	54	26.202	2		26.250	54	26.202	2		26.250	54	26.202
3		27.502	53	27.452	3		27.502	53	27.452	3		27.502	53	27.452
4		24.045	66	23.970	4		24.045	66	23.970	4		24.045	66	23.970
Station 1	8 54	24.738	66	24.689	Station 1	8 55	24.738	66	24.689	Station 1	8 56	24.738	66	24.689
2		26.250	54	26.202	2		26.250	54	26.202	2		26.250	54	26.202
3		27.502	53	27.452	3		27.502	53	27.452	3		27.502	53	27.452
4		24.045	66	23.970	4		24.045	66	23.970	4		24.045	66	23.970
Station 1	8 57	24.738	66	24.689	Station 1	8 58	24.738	66	24.689	Station 1	8 59	24.738	66	24.689
2		26.250	54	26.202	2		26.250	54	26.202	2		26.250	54	26.202
3		27.502	53	27.452	3		27.502	53	27.452	3		27.502	53	27.452
4		24.045	66	23.970	4		24.045	66	23.970	4		24.045	66	23.970

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Meteorological record for June 4, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
Station 1	a. m.			
	8 0	23.765	62	23.698
		24.410	46.5	24.394
		25.950	50	25.890
		27.165	59	27.101
Station 1	8 1	23.765	62	23.698
		24.409	48.5	24.393
		25.950	50	25.890
		27.165	59	27.101
Station 1	8 2	23.765	62.5	23.697
		24.410	48.5	24.394
		25.950	50	25.890
		27.165	59	27.101
Station 1	8 3	23.765	62.5	23.697
		24.410	49	24.395
		25.950	50	25.890
		27.166	59	27.102
Station 1	8 4	23.765	63.5	23.690
		24.410	48	24.395
		25.948	59	25.888
		27.166	58.5	27.100
Station 1	8 5	23.768	63.5	23.697
		24.410	49	24.395
		25.948	59	25.888
		27.167	58.5	27.101
Station 1	8 6	23.766	64	23.695
		24.410	48	24.395
		25.948	59	25.888
		27.166	58.5	27.100
Station 1	8 7	23.766	64.5	23.690
		24.408	47.5	24.391
		25.946	59	25.886
		27.165	58.5	27.100
Station 1	8 8	23.765	64.5	23.691
		24.408	47.5	24.391
		25.945	59	25.885
		27.165	58.5	27.100
Station 1	8 9	23.765	64.5	23.691
		24.408	47.5	24.391
		25.945	59	25.885
		27.165	58.5	27.100
Station 1	8 10	23.766	65.3	23.692
		24.408	52	24.394
		25.945	57	25.889
		27.166	58	27.105
Station 1	8 16	23.766	65	23.693
		24.409	52	24.395
		25.945	56	25.892
		27.167	59	27.107
Station 1	8 17	23.766	65	23.693
		24.407	51	24.386
		25.945	54.5	25.886
		27.167	58.5	27.104
Station 1	8 18	23.763	64.5	23.691
		24.406	51	24.385
		25.945	55	25.894
		27.164	58	27.103
Station 1	8 19	23.763	64.5	23.691
		24.406	50.5	24.386
		25.938	55	25.887
		27.165	58	27.104
Station 1	8 20	23.763	64.5	23.691
		24.407	50.5	24.387
		25.938	53	25.887
		27.165	58	27.104
Station 1	8 21	23.763	64.5	23.691
		24.399	50	24.380
		25.938	53	25.880
		27.165	58	27.104
Station 1	8 22	23.763	64.5	23.691
		24.399	50	24.379
		25.938	55	25.889
		27.167	58	27.106
Station 1	8 30	23.762	66	23.697
		24.399	50	24.380
		25.932	56	25.890
		27.159	58.5	27.096
Station 1	8 31	23.762	66	23.687
		24.399	50	24.380
		25.935	56	25.883
		27.158	58	27.097
Station 1	8 32	23.765	65.5	23.692
		24.399	50	24.380
		25.938	56	25.886
		27.158	58	27.097
Station 1	8 33	23.756	65.5	23.682
		24.399	50	24.380
		25.938	56.5	25.885
		27.158	58	27.097
Station 1	8 34	24.399	50	24.380
		25.938	56.5	25.885
		27.155	58	27.094
Station 1	8 35	24.756	61.5	23.689
		24.399	50	24.380
		25.938	56.5	25.885
		27.150	58	27.049
Station 1	8 36	23.754	63	23.681
		24.399	50	24.380
		25.938	56.5	25.885
		27.150	58	27.049
Station 1	8 37	23.754	63	23.681
		24.399	50	24.380
		25.938	56.5	25.885
		27.150	58	27.049
Station 1	8 45	23.748	64.5	23.670
		24.390	52	24.375
		25.930	57.5	25.874
		27.149	57.5	27.089
Station 1	8 46	23.748	64.5	23.676
		24.396	52	24.374
		25.930	57.5	25.874
		27.147	57.5	27.087
Station 1	8 47	23.743	64.5	23.671
		24.399	52	24.375
		25.928	57	25.873
		27.145	57.5	27.085
Station 1	8 48	23.743	64.5	23.671
		24.399	52	24.375
		25.928	57	25.873
		27.145	57.5	27.085
Station 1	8 49	23.743	64.5	23.671
		24.399	52.5	24.374
		25.928	58	25.870
		27.143	57.5	27.083
Station 1	8 50	23.743	64.5	23.671
		24.399	52.5	24.374
		25.928	58	25.870
		27.145	57.5	27.085
Station 1	8 51	23.743	64.5	23.671
		24.399	52.5	24.374
		25.929	58	25.870
		27.147	57.5	27.087
Station 1	8 52	23.743	64.5	23.671
		24.399	52.5	24.374
		25.930	58.5	25.869
		27.147	57.5	27.087
Station 1	8 53	23.743	64.5	23.671
		24.399	53	24.374
		25.930	58	25.870
		27.147	57.5	27.087

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Station No. 1.—Summit of Mount Washington. Elevation of barometer above sea-level .. 6285.4 feet.
Station No. 2.—Above Jacob's Ladder. Elevation of barometer above sea-level ..... 5553.3 feet.
Station No. 3.—Waumback House. Elevation of barometer above sea-level ..... 4058.7 feet.
Station No. 4.—Base of Mount Washington. Elevation of barometer above sea-level..... 2696.3 feet.

NOTE.—Barometer-readings corrected for temperature and instrumental error only.

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Meteorological record for June 5, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	d. m.			
Station 1.	8 0	23.526	60	23.467
2.		24.241	62	24.196
3.		25.710	60	25.649
4.		26.909	58	26.848
Station 2.	8 1	23.535	61	23.470
2.		24.241	61.5	24.199
3.		25.705	59.8	25.645
4.		26.909	58	26.848
Station 3.	8 2	23.528	61	23.463
2.		24.239	60	24.196
3.		25.708	59.5	25.642
4.		26.909	58	26.846
Station 4.	8 3	23.530	61.5	23.465
2.		24.239	60	24.196
3.		25.708	59	25.649
4.		26.909	58	26.848
Station 5.	8 4	23.535	61.5	23.471
2.		24.239	59	24.199
3.		25.708	58	25.649
4.		26.909	58	26.844
Station 6.	8 5	23.534	61.5	23.470
2.		24.240	60	24.199
3.		25.708	59	25.650
4.		26.907	59	26.844
Station 7.	8 6	23.534	60	23.470
2.		24.240	60	24.199
3.		25.708	59	25.649
4.		26.907	59	26.843
Station 8.	8 7	23.534	60.5	23.470
2.		24.239	60	24.199
3.		25.708	59	25.649
4.		26.907	59	26.843
Station 1.	8 15	23.535	63	23.468
2.		24.220	59	24.191
3.		25.705	57.5	25.650
4.		26.909	59	26.845
Station 1.	8 16	23.540	63	23.473
2.		24.220	59	24.191
3.		25.705	57.5	25.650
4.		26.912	59	26.848
Station 1.	8 17	23.540	63	23.473
2.		24.220	59	24.191
3.		25.705	57.5	25.650
4.		26.914	59	26.850
Station 1.	8 18	23.540	63	24.191
2.		24.220	59	25.653
3.		25.708	57.5	26.849
4.		26.913	59	26.849
Station 1.	8 19	23.540	63	23.473
2.		24.220	59	24.191
3.		25.710	57.5	25.655
4.		26.913	59	26.849
Station 1.	8 20	23.540	63	23.473
2.		24.220	59	24.191
3.		25.710	57.5	25.655
4.		26.915	59	26.851
Station 1.	8 21	23.538	63	23.471
2.		24.220	58.5	24.198
3.		25.702	57.5	25.647
4.		26.913	59	26.851
Station 1.	8 22	23.534	63	23.471
2.		24.220	58	24.202
3.		25.704	57.5	25.647
4.		26.914	59	26.850
Station 1.	8 23	23.540	63	23.471
2.		24.220	58	24.202
3.		25.704	57.5	25.647
4.		26.914	59	26.850
Station 1.	8 30	23.543	63	23.475
2.		24.220	58	24.207
3.		25.710	57.5	25.655
4.		26.919	59	26.835
Station 1.	8 31	23.540	63	23.473
2.		24.220	58	24.207
3.		25.710	57	25.656
4.		26.919	59	26.835
Station 1.	8 32	23.540	63	23.473
2.		24.240	58	24.210
3.		25.710	57	25.656
4.		26.920	59	26.836
Station 1.	8 33	23.540	62.5	23.474
2.		24.240	58.5	24.211
3.		25.710	57	25.656
4.		26.920	59	26.836
Station 1.	8 34	23.540	62.5	23.474
2.		24.240	58.5	24.211
3.		25.710	57	25.656
4.		26.920	59	26.836
Station 1.	8 35	23.540	62.5	23.474
2.		24.239	58.5	24.210
3.		25.710	57	25.653
4.		26.920	59	26.836
Station 1.	8 36	23.544	62.5	23.478
2.		24.239	58.5	24.213
3.		25.718	57.5	25.663
4.		26.920	59	26.836
Station 1.	8 37	23.544	62.5	23.478
2.		24.230	59	24.206
3.		25.704	57.5	25.667
4.		26.920	59	26.835
Station 1.	8 38	23.545	62.5	23.474
2.		24.240	59	24.211
3.		25.710	57	25.656
4.		26.920	59	26.836
Station 1.	8 45	23.550	62	23.485
2.		24.230	58	24.204
3.		25.720	59	25.664
4.		26.922	59	26.836
Station 1.	8 46	24.229	58	24.203
2.		25.722	58	25.666
3.		26.922	59	26.838
4.		26.922	59	26.838
Station 1.	8 47	23.550	61.5	23.486
2.		24.229	58	24.212
3.		25.722	58	25.669
4.		26.922	59	26.836
Station 1.	8 48	23.550	61.5	23.485
2.		24.229	58	24.213
3.		25.725	58	25.669
4.		26.922	59	26.836
Station 1.	8 49	23.554	61.5	23.485
2.		24.227	58	24.211
3.		25.722	58	25.666
4.		26.922	59	26.836
Station 1.	8 50	23.554	61.5	23.485
2.		24.227	58	24.211
3.		25.722	58	25.666
4.		26.923	59	26.836
Station 1.	8 51	23.554	61.5	23.485
2.		24.228	58	24.205
3.		25.728	58	25.679
4.		26.922	59	26.836
Station 1.	8 52	23.554	61.5	23.485
2.		24.228	58	24.205
3.		25.728	58	25.679
4.		26.923	59	26.836
Station 1.	8 53	23.554	61.5	23.485
2.		24.228	58	24.205
3.		25.728	58	25.679
4.		26.923	59	26.836

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Meteorological record for June 6, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.			
Station 1	8 0	23.725	70	23.642
2		24.370	63	24.323
3		25.854	61	25.790
4		27.057	58	26.996
Station 1	8 1	23.725	70	23.643
2		24.370	63	24.322
3		25.854	61	25.790
4		27.058	58	26.997
Station 1	8 2	23.730	70.5	23.647
2		24.370	63.5	24.321
3		25.854	62	25.787
4		27.056	58	26.995
Station 1	8 3	23.732	71	23.648
2		24.370	63.5	24.321
3		25.854	62	25.787
4		27.055	58	26.994
Station 1	8 4	23.730	71.5	23.645
2		24.370	63.5	24.321
3		25.854	64	25.787
4		27.054	58	26.993
Station 1	8 5	23.732	72	23.646
2		24.370	63.5	24.321
3		25.854	61	25.790
4		27.055	58	26.994
Station 1	8 6	23.731	72	23.645
2		24.370	63.5	24.321
3		25.855	60	25.793
4		27.055	58	26.994
Station 1	8 7	23.732	72.5	23.646
2		24.370	64	24.321
3		25.855	59	25.795
4		27.054	58	26.993
Station 1	8 8	23.714	72.5	23.647
2		24.370	64	24.321
3		25.855	59	25.795
4		27.055	58	26.994
Station 1	8 9	23.732	73	23.645
2		24.370	64	24.321
3		25.855	59	25.795
4		27.055	58	26.994
Station 1	8 10	23.732	73	23.645
2		24.370	64	24.321
3		25.855	59	25.795
4		27.055	58	26.994
Station 1	8 11	23.714	73	23.643
2		24.370	64	24.321
3		25.855	59	25.795
4		27.055	58	26.994
Station 1	8 12	23.714	73	23.643
2		24.370	64	24.321
3		25.855	59	25.795
4		27.055	58	26.994
Station 1	8 13	23.714	73	23.643
2		24.370	64	24.321
3		25.855	59	25.795
4		27.055	58	26.994
Station 1	8 14	23.714	73	23.643
2		24.370	64	24.321
3		25.855	59	25.795
4		27.055	58	26.994
Station 1	8 15	23.735	74	23.645
2		24.370	63	24.322
3		25.850	57	25.795
4		27.060	58	26.999
Station 1	8 16	23.736	74.5	23.644
2		24.370	62.5	24.323
3		25.850	57	25.795
4		27.058	58	26.997
Station 1	8 17	23.736	75	23.643
2		24.370	62.5	24.323
3		25.850	57	25.795
4		27.058	58	26.997
Station 1	8 18	23.736	75	23.643
2		24.370	62.5	24.323
3		25.850	57	25.795
4		27.058	58	26.997
Station 1	8 19	23.734	74.5	23.642
2		24.370	62	24.325
3		25.850	57	25.795
4		27.058	58	26.997
Station 1	8 20	23.734	74.5	23.642
2		24.370	62	24.325
3		25.852	57	25.797
4		27.058	58	26.997
Station 1	8 21	23.734	74.5	23.643
2		24.370	62	24.325
3		25.853	57.5	25.795
4		27.058	58	26.997
Station 1	8 22	23.734	74.5	23.643
2		24.370	62.5	24.325
3		25.853	57.5	25.795
4		27.058	58	26.997
Station 1	8 23	23.714	74.5	23.643
2		24.370	62	24.325
3		25.852	57.5	25.795
4		27.058	58	26.997
Station 1	8 24	23.735	74.5	23.643
2		24.370	63	24.327
3		25.850	58	25.792
4		27.060	58	26.999
Station 1	8 25	23.735	74.5	23.643
2		24.370	63	24.327
3		25.850	58	25.792
4		27.059	58	26.998
Station 1	8 26	23.735	74.5	23.643
2		24.370	63	24.327
3		25.850	58	25.792
4		27.059	58	26.998
Station 1	8 27	23.735	74.5	23.643
2		24.370	63	24.327
3		25.850	58	25.792
4		27.059	58	26.998
Station 1	8 28	23.735	74.5	23.643
2		24.370	63	24.327
3		25.850	58	25.792
4		27.059	58	26.998
Station 1	8 29	23.735	74.5	23.643
2		24.370	63	24.327
3		25.850	58	25.792
4		27.059	58	26.998
Station 1	8 30	23.735	75	23.642
2		24.370	63	24.327
3		25.850	58	25.792
4		27.059	58	26.998
Station 1	8 31	23.735	75	23.642
2		24.370	63	24.328
3		25.850	58	25.792
4		27.059	58	26.998
Station 1	8 32	23.735	75	23.642
2		24.370	63	24.329
3		25.850	58	25.792
4		27.059	58	26.998
Station 1	8 33	23.735	75	23.642
2		24.370	63	24.329
3		25.850	58	25.792
4		27.059	58	26.998
Station 1	8 34	23.735	75	23.642
2		24.370	63	24.329
3		25.850	58	25.792
4		27.058	58	26.997
Station 1	8 35	23.735	75	23.642
2		24.370	63	24.329
3		25.850	58	25.792
4		27.059	58	26.998
Station 1	8 36	23.735	75	23.642
2		24.370	63	24.328
3		25.850	58	25.792
4		27.058	58	26.997
Station 1	8 37	23.735	75	23.642
2		24.369	63	24.327
3		25.850	58	25.792
4		27.059	58	26.998
Station 1	8 38	23.735	75	23.643
2		24.369	63	24.327
3		25.850	58	25.792
4		27.058	58	26.997
Station 1	8 39	23.735	74.5	23.643
2		24.369	63	24.327
3		25.850	58	25.792
4		27.059	58	26.998
Station 1	8 40	23.735	74.5	23.643
2		24.369	63	24.330
3		25.850	58.5	25.791
4		27.059	58	26.998
Station 1	8 41	23.735	74.5	23.643
2		24.369	63	24.330
3		25.850	58.5	25.791
4		27.059	58	26.998
Station 1	8 42	23.735	74.5	23.643
2		24.369	63	24.330
3		25.850	58.5	25.791
4		27.059	58	26.998
Station 1	8 43	23.735	74.5	23.643
2		24.369	63	24.330
3		25.850	58.5	25.791
4		27.059	58	26.998
Station 1	8 44	23.735	74.5	23.643
2		24.369	63	24.330
3		25.850	58.5	25.791
4		27.059	58	26.998
Station 1	8 45	23.735	74.5	23.643
2		24.369	63	24.329
3		25.850	58.5	25.791
4		27.059	58	26.998
Station 1	8 46	23.735	74.5	23.643
2		24.369	63	24.330
3		25.850	58.5	25.790
4		27.059	58	26.994
Station 1	8 47	23.735	74.5	23.643
2		24.369	63	24.330
3		25.850	58.5	25.791
4		27.059	58	26.994
Station 1	8 48	23.735	74.5	23.643
2		24.367	63	24.330
3		25.850	58	25.790
4		27.059	58	26.994
Station 1	8 49	23.735	74.5	23.643
2		24.369	63	24.330
3		25.850	59	25.790
4		27.059	58	26.994
Station 1	8 50	23.735	74.5	23.643
2		24.369	63	24.330
3		25.850	59	25.790
4		27.060	58	26.994
Station 1	8 51	23.735	74.5	23.643
2		24.369	63	24.330
3		25.850	59	25.790
4		27.060	58	26.994
Station 1	8 52	23.735	74.5	23.643
2		24.369	63	24.330
3		25.850	59	25.790
4		27.060	58	26.994
Station 1	8 53	23.735	74.5	23.643
2		24.369	63	24.330
3		25.850	59	25.790
4		27.060	58	26.994

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Meteorological record for June 7, 1871.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	h. m.			
Station 1	8 0	23.785	67	23.707
2		24.459	63	24.481
3		25.935	58	25.877
4		27.168	60	27.102
Station 1	8 1	23.785	67	23.707
2		24.459	63	24.481
3		25.935	58	25.877
4		27.168	60	27.102
Station 1	8 2	23.785	67	23.707
2		24.454	63	24.416
3		25.935	57.5	25.879
4		27.168	60	27.102
Station 1	8 3	23.785	67	23.707
2		24.454	63	24.409
3		25.935	57.5	25.879
4		27.168	60	27.102
Station 1	8 4	23.785	67	23.707
2		24.454	63	24.409
3		25.935	57	25.880
4		27.168	60	27.102
Station 1	8 5	23.785	67	23.707
2		24.454	63	24.410
3		25.935	57	25.880
4		27.168	60.5	27.101
Station 1	8 6	23.785	67	23.707
2		24.454	61.5	24.410
3		25.935	57	25.880
4		27.168	60.5	27.101
Station 1	8 7	23.785	67	23.707
2		24.454	61	24.411
3		25.935	56.5	25.881
4		27.169	60.5	27.103
Station 1	8 8	23.785	67	23.707
2		24.454	61	24.411
3		25.935	56.5	25.881
4		27.169	60.5	27.104

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	h. m.			
Station 1	8 15	23.785	67	23.707
2		24.454	60	24.413
3		25.935	56	25.882
4		27.170	60	27.104
Station 1	8 16	23.785	67	23.707
2		24.454	60	24.413
3		25.935	56	25.882
4		27.170	60	27.104
Station 1	8 17	23.785	67	23.707
2		24.450	60	24.409
3		25.935	56	25.882
4		27.170	60	27.104
Station 1	8 18	23.785	66	23.710
2		24.450	60	24.409
3		25.935	56	25.882
4		27.170	60	27.104
Station 1	8 19	23.785	66	23.710
2		24.450	59.5	24.410
3		25.935	56	25.882
4		27.170	60	27.104
Station 1	8 20	23.785	66	23.710
2		24.450	59.5	24.410
3		25.935	56	25.882
4		27.170	60	27.104
Station 1	8 21	23.785	66	23.710
2		24.450	58.5	24.410
3		25.935	56	25.882
4		27.170	60	27.104
Station 1	8 22	23.785	66	23.710
2		24.450	58.5	24.410
3		25.935	56	25.882
4		27.170	60	27.104
Station 1	8 23	23.785	66	23.710
2		24.450	58.5	24.410
3		25.935	56	25.882
4		27.170	60	27.104

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	h. m.			
Station 1	8 30	23.785	66	23.710
2		24.449	58	24.412
3		25.938	55.5	25.886
4		27.172	60	27.106
Station 1	8 31	23.785	66	23.710
2		24.449	58	24.412
3		25.938	54.5	25.886
4		27.172	60	27.106
Station 1	8 32	23.785	66	23.710
2		24.449	58.5	24.411
3		25.938	55	25.887
4		27.171	60	27.105
Station 1	8 33	23.785	66	23.710
2		24.449	59	24.410
3		25.938	55	25.887
4		27.172	60	27.106
Station 1	8 34	23.785	66	23.712
2		24.449	59	24.410
3		25.933	54.5	25.885
4		27.171	60	27.105
Station 1	8 35	23.783	64	23.712
2		24.449	59	24.410
3		25.935	54.5	25.885
4		27.171	60	27.105
Station 1	8 36	23.782	64	23.711
2		24.449	59	24.409
3		25.933	54.5	25.885
4		27.171	60	27.105
Station 1	8 37	23.782	64	23.711
2		24.449	60	24.404
3		25.935	54	25.887
4		27.170	60.5	27.105
Station 1	8 38	23.780	63.5	23.710
2		24.449	60	24.407
3		25.935	54	25.887
4		27.170	60	27.105

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	h. m.			
Station 1	8 45	23.780	62	23.713
2		24.448	60	24.407
3		25.935	54	25.887
4		27.171	60.5	27.106
Station 1	8 46	23.780	62	23.713
2		24.449	60	24.408
3		25.930	54	25.893
4		27.170	60.5	27.105
Station 1	8 47	23.778	62	23.711
2		24.449	60	24.408
3		25.930	54	25.893
4		27.169	60.5	27.104
Station 1	8 48	23.778	62	23.711
2		24.448	60	24.407
3		25.930	54	25.893
4		27.169	60.5	27.104
Station 1	8 49	23.778	62	23.707
2		24.449	60	24.409
3		25.930	54	25.893
4		27.170	60.5	27.105
Station 1	8 50	23.773	61	23.708
2		24.449	60	24.409
3		25.930	54	25.893
4		27.170	60.5	27.105
Station 1	8 51	23.773	61	23.708
2		24.447	59.5	24.407
3		25.930	54	25.893
4		27.169	60.5	27.104
Station 1	8 52	23.773	61	23.709
2		24.447	60	24.406
3		25.930	54	25.893
4		27.170	60	27.104
Station 1	8 53	23.770	61	23.705
2		24.447	60.5	24.405
3		25.930	53.5	25.894
4		27.170	60	27.104

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Station 1	8 9	23. 785	67	23. 707	Station 1	8 24	23. 785	66	23. 710	Station 1	8 39	23. 780	63. 5	23. 710	Station 1	8 54	23. 770	61	23. 705
2		24. 454	61	24. 411	2		24. 450	59	24. 411	2		24. 449	60	24. 408	2		24. 447	60	24. 406
3		25. 935	56	25. 882	3		25. 935	56	25. 882	3		25. 935	54	25. 887	3		25. 930	53. 5	25. 883
4.		27. 169	60. 5	27. 102	4		27. 170	60	27. 104	4		27. 170	59. 5	27. 105	4		27. 170	60	27. 104
Station 1	8 10	23. 785	67	23. 707	Station 1	8 25	23. 785	66	23. 710	Station 1	8 40	23. 780	63	23. 711	Station 1	8 55	23. 770	60. 5	23. 706
2		24. 454	61	24. 411	2		24. 449	58	24. 412	2		24. 441	60	24. 400	2		24. 449	60	24. 406
3		25. 935	56	25. 882	3		25. 935	56	25. 882	3		25. 935	54	25. 887	3		25. 930	53. 5	25. 883
4.		27. 170	60. 5	27. 103	4		27. 170	60	27. 104	4		27. 170	59. 5	27. 105	4		27. 169	59. 5	27. 104
Station 1	8 11	23. 785	67	23. 707	Station 1	8 26	23. 785	66	23. 710	Station 1	8 41	23. 780	63	23. 711	Station 1	8 56	23. 770	60. 5	23. 706
2		24. 454	61	24. 411	2		24. 449	58	24. 412	2		24. 441	60	24. 400	2		24. 450	59. 5	24. 410
3		25. 935	56	25. 882	3		25. 935	55. 5	25. 883	3		25. 935	54	25. 887	3		25. 930	53. 5	25. 883
4.		27. 170	60. 5	27. 103	4		27. 172	59	27. 106	4		27. 170	59. 5	27. 105	4		27. 169	60	27. 103
Station 1	8 12	23. 785	67	23. 707	Station 1	8 27	23. 785	66	23. 710	Station 1	8 42	23. 780	62. 5	23. 712	Station 1	8 57	23. 770	60	23. 707
2		24. 454	61	24. 411	2		24. 449	57. 5	24. 413	2		24. 448	61	24. 405	2		24. 450	59. 5	24. 410
3		25. 935	56	25. 882	3		25. 935	55. 5	25. 883	3		25. 935	54	25. 887	3		25. 932	54	25. 884
4		27. 170	60. 5	27. 103	4		27. 171	60. 5	27. 104	4		27. 170	59. 5	27. 105	4		27. 169	60	27. 103
Station 1	8 13	23. 785	67	23. 707	Station 1	8 28	23. 785	66	23. 710	Station 1	8 43	23. 780	62. 5	23. 712	Station 1	8 58	23. 770	60	23. 707
2		24. 454	60. 5	24. 412	2		24. 449	57. 5	24. 413	2		24. 449	61	24. 406	2		24. 450	59	24. 411
3		25. 935	56	25. 882	3		25. 935	55. 5	25. 883	3		25. 935	54	25. 887	3		25. 932	54	25. 884
4.		27. 170	60	27. 104	4		27. 171	60. 5	27. 104	4		27. 170	59. 5	27. 105	4		27. 169	60	27. 103
Station 1	8 14	23. 785	67	23. 707	Station 1	8 29	23. 785	66	23. 710	Station 1	8 44	23. 780	62	23. 713	Station 1	8 59	23. 770	60	23. 707
2		24. 454	60. 5	24. 412	2		24. 450	58	24. 413	2		24. 448	60	24. 407	2		24. 449	59	24. 410
3		25. 935	56	25. 883	3		25. 935	55. 5	25. 883	3		25. 935	54	25. 887	3		25. 932	54	25. 884
4		27. 170	60	27. 104	4		27. 171	60. 5	27. 104	4		27. 171	60	27. 105	4		27. 169	60	27. 103

Station No. 1.—Summit of Mount Washington. Elevation of barometer above sea-level ... 6,285.4 feet.
Station No. 2.—Above Jacob's Ladder. Elevation of barometer above sea-level..... 5,553.3 feet.
Station No. 3.—Waumbeck House. Elevation of barometer above sea-level .... 4,058.7 feet.
Station No. 4.—Base of Mount Washington. Elevation of barometer above sea-level..... 2,898.3 feet.

NOTE.—Barometer-readings corrected for temperature and instrumental error only.

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Meteorological record for June 8, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	d. m.			
Station 1	8 0	23.985	58	23.927
2		24.670	66.5	24.615
3		26.181	58	26.123
4		27.425	58	27.362
Station 1	8 1	23.970	57.5	23.913
2		24.670	66	24.610
3		26.181	58	26.123
4		27.425	58	27.362
Station 1	8 2	23.970	57.5	23.913
2		24.679	66	24.625
3		26.180	57	26.125
4		27.422	58	27.359
Station 1	8 3	23.970	57.5	23.913
2		24.674	65	24.622
3		26.180	57	26.125
4		27.422	58	27.359
Station 1	8 4	23.975	57.5	23.918
2		24.674	65	24.622
3		26.180	58	26.127
4		27.427	58	27.364
Station 1	8 5	23.975	57.5	23.918
2		24.674	64	24.624
3		26.180	55	26.129
4		27.428	58	27.365
Station 1	8 6	23.975	57.5	23.918
2		24.674	63.5	24.625
3		26.180	54.5	26.131
4		27.424	58	27.361
Station 1	8 7	23.975	57.5	23.918
2		24.674	63.5	24.625
3		26.180	54.5	26.131
4		27.427	58	27.364
Station 1	8 8	23.975	57.5	23.918
2		24.674	64	24.624
3		26.180	54	26.130
4		27.427	58	27.365
Station 1	8 9	23.975	57.5	23.918
2		24.674	64	24.624
3		26.180	54	26.130
4		27.427	58	27.365
Station 1	8 10	23.975	57.5	23.918
2		24.674	64	24.624
3		26.180	54	26.130
4		27.427	58	27.365
Station 1	8 11	23.975	57.5	23.918
2		24.674	64	24.624
3		26.180	54	26.130
4		27.427	58	27.365
Station 1	8 12	23.975	57.5	23.918
2		24.674	64	24.624
3		26.180	54	26.130
4		27.427	58	27.365
Station 1	8 13	23.975	57.5	23.918
2		24.674	64	24.624
3		26.180	54	26.130
4		27.427	58	27.365
Station 1	8 14	23.975	57.5	23.918
2		24.674	64	24.624
3		26.180	54	26.130
4		27.427	58	27.365
Station 1	8 15	23.975	58	23.918
2		24.677	63	24.627
3		26.173	58	26.123
4		27.430	58	27.367
Station 1	8 16	23.975	58	23.918
2		24.677	63	24.627
3		26.173	58	26.123
4		27.430	59	27.367
Station 1	8 17	23.975	57.5	23.918
2		24.677	63.5	24.628
3		26.173	58	26.123
4		27.430	59	27.367
Station 1	8 18	23.975	57.5	23.918
2		24.677	63.5	24.628
3		26.173	58	26.123
4		27.430	59	27.367
Station 1	8 19	23.975	57.5	23.918
2		24.677	63.5	24.628
3		26.173	58	26.127
4		27.431	59.5	27.364
Station 1	8 20	23.975	57.5	23.918
2		24.671	63.5	24.622
3		26.173	58	26.127
4		27.431	59.5	27.364
Station 1	8 21	23.975	57.5	23.918
2		24.671	63	24.621
3		26.170	58	26.124
4		27.431	60	27.364
Station 1	8 22	23.975	58	23.921
2		24.671	63	24.621
3		26.170	58	26.124
4		27.433	60	27.366
Station 1	8 23	23.975	58	23.921
2		24.671	63	24.621
3		26.170	58	26.124
4		27.434	60	27.367
Station 1	8 30	23.975	58	23.921
2		24.680	63.5	24.630
3		26.172	58	26.127
4		27.440	60.5	27.371
Station 1	8 31	23.975	58	23.921
2		24.680	63.5	24.630
3		26.172	58	26.127
4		27.439	60.5	27.370
Station 1	8 32	23.975	56	23.921
2		24.680	63.5	24.630
3		26.172	58	26.127
4		27.440	60.5	27.371
Station 1	8 33	23.980	56	23.926
2		24.680	63.5	24.630
3		26.172	58	26.127
4		27.441	61	27.371
Station 1	8 34	23.980	56	23.926
2		24.680	63.5	24.630
3		26.172	58	26.126
4		27.441	61	27.371
Station 1	8 35	23.980	56	23.926
2		24.680	63.5	24.625
3		26.173	58	26.127
4		27.441	61	27.371
Station 1	8 36	23.980	56	23.926
2		24.680	63.5	24.625
3		26.173	58	26.127
4		27.441	61	27.370
Station 1	8 37	23.980	56	23.926
2		24.691	63.5	24.625
3		26.173	58	26.127
4		27.440	61	27.370
Station 1	8 38	23.980	56	23.926
2		24.691	63.5	24.625
3		26.173	58	26.127
4		27.440	61	27.370
Station 1	8 39	23.980	56	23.926
2		24.691	63.5	24.625
3		26.173	58	26.127
4		27.440	61	27.370
Station 1	8 40	23.980	56	23.926
2		24.691	63.5	24.625
3		26.173	58	26.127
4		27.440	61	27.370
Station 1	8 41	23.980	56	23.926
2		24.691	63.5	24.625
3		26.173	58	26.127
4		27.440	61	27.370
Station 1	8 42	23.980	56	23.926
2		24.691	63.5	24.625
3		26.173	58	26.127
4		27.440	61	27.370
Station 1	8 43	23.980	56	23.926
2		24.691	63.5	24.625
3		26.173	58	26.127
4		27.440	61	27.370
Station 1	8 44	23.980	56	23.926
2		24.691	63.5	24.625
3		26.173	58	26.127
4		27.440	61	27.370
Station 1	8 45	23.980	55	23.928
2		24.709	72	24.642
3		26.175	53.5	26.128
4		27.445	62	27.373
Station 1	8 46	23.980	55	23.928
2		24.706	70	24.643
3		26.175	53.5	26.128
4		27.444	62	27.372
Station 1	8 47	23.983	55	23.931
2		24.707	70	24.644
3		26.175	53.5	26.128
4		27.442	62	27.370
Station 1	8 48	23.983	55	23.931
2		24.700	69	24.639
3		26.180	53.5	26.133
4		27.443	62	27.371
Station 1	8 49	23.983	55	23.931
2		24.704	69	24.643
3		26.180	54	26.132
4		27.442	63	27.370
Station 1	8 50	23.983	55	23.931
2		24.704	68	24.643
3		26.180	54	26.132
4		27.445	63	27.373
Station 1	8 51	23.983	55	23.933
2		24.704	68	24.646
3		26.180	54	26.132
4		27.447	62.5	27.373
Station 1	8 52	23.986	56	23.932
2		24.700	68	24.642
3		26.180	54	26.132
4		27.447	62.5	27.373
Station 1	8 53	23.986	56	23.932
2		24.700	68	24.642
3		26.180	54	26.132
4		27.447	62.5	27.373

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Meteorological record for June 9, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.			
Station 1	8 0	24.060	68	23.980
2		24.738	64.5	24.658
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 1	24.060	68	23.980
2		24.738	65.5	24.658
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 2	24.060	68	23.980
2		24.738	65.5	24.658
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 3	24.060	68	23.980
2		24.738	65	24.658
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 4	24.060	68	23.980
2		24.738	65	24.658
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 5	24.060	67.5	23.981
2		24.738	65	24.658
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 6	24.060	67	23.982
2		24.738	65	24.658
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 7	24.060	66.5	23.981
2		24.738	65	24.658
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 8	24.060	66	23.981
2		24.738	64.5	24.658
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 9	24.060	66	23.981
2		24.738	64.5	24.658
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 10	24.060	66	23.981
2		24.738	64.5	24.658
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 11	24.060	66	23.981
2		24.738	64.5	24.658
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 12	24.060	66	23.981
2		24.738	64.5	24.658
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 13	24.060	66	23.981
2		24.738	64.5	24.658
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 14	24.060	66	23.981
2		24.738	64.5	24.658
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 15	24.060	65	23.980
2		24.740	64.5	24.660
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 16	24.060	65	23.980
2		24.740	64.5	24.660
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 17	24.060	65	23.980
2		24.740	64.5	24.660
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 18	24.058	66.5	23.985
2		24.740	64.5	24.660
3		26.225	60.5	26.172
4		27.446	58	27.385
Station 1	8 19	24.058	65	23.985
2		24.739	66.5	24.661
3		26.225	61	26.171
4		27.446	58	27.385
Station 1	8 20	24.058	66	23.985
2		24.739	64.5	24.661
3		26.225	60.5	26.172
4		27.446	58	27.385
Station 1	8 21	24.055	66	23.980
2		24.739	67	24.663
3		26.225	61	26.171
4		27.447	58	27.384
Station 1	8 22	24.055	66	23.980
2		24.740	64.5	24.661
3		26.225	61	26.171
4		27.447	58	27.384
Station 1	8 23	24.055	66	23.980
2		24.739	64.5	24.661
3		26.225	61	26.171
4		27.447	58	27.384
Station 1	8 24	24.055	66	23.980
2		24.739	64.5	24.661
3		26.225	61	26.171
4		27.447	58	27.384
Station 1	8 25	24.055	66	23.980
2		24.739	64.5	24.661
3		26.225	61	26.171
4		27.447	58	27.384
Station 1	8 26	24.055	66	23.980
2		24.739	64.5	24.661
3		26.225	61	26.171
4		27.447	58	27.384
Station 1	8 27	24.055	66	23.980
2		24.739	64.5	24.661
3		26.225	61	26.171
4		27.447	58	27.384
Station 1	8 28	24.055	66	23.980
2		24.739	64.5	24.661
3		26.225	61	26.171
4		27.447	58	27.384
Station 1	8 29	24.055	66	23.980
2		24.739	64.5	24.661
3		26.225	61	26.171
4		27.447	58	27.384
Station 1	8 30	24.058	66	23.983
2		24.744	64.5	24.663
3		26.225	61	26.173
4		27.448	58	27.385
Station 1	8 31	24.058	66	23.983
2		24.744	64.5	24.663
3		26.225	61	26.173
4		27.447	58	27.384
Station 1	8 32	24.058	66	23.983
2		24.744	64.5	24.677
3		26.225	61	26.173
4		27.445	58	27.382
Station 1	8 33	24.058	66	23.983
2		24.747	64.5	24.680
3		26.225	61	26.173
4		27.445	58	27.382
Station 1	8 34	24.058	66	23.983
2		24.747	64.5	24.682
3		26.225	61	26.173
4		27.446	58	27.383
Station 1	8 35	24.058	66	23.983
2		24.747	64.5	24.682
3		26.223	61	26.173
4		27.446	58	27.383
Station 1	8 36	24.058	66	23.983
2		24.750	64.5	24.681
3		26.225	61	26.173
4		27.447	58	27.384
Station 1	8 37	24.060	66	23.985
2		24.750	64.5	24.684
3		26.225	60	26.173
4		27.445	58	27.382
Station 1	8 38	24.060	66	23.985
2		24.749	64.5	24.684
3		26.225	60	26.174
4		27.445	58	27.382
Station 1	8 39	24.060	66	23.985
2		24.750	64.5	24.684
3		26.225	60	26.173
4		27.446	58	27.383
Station 1	8 40	24.060	66	23.985
2		24.750	64.5	24.684
3		26.225	60	26.173
4		27.446	58	27.383
Station 1	8 41	24.060	66	23.985
2		24.750	64.5	24.684
3		26.225	60	26.173
4		27.446	58	27.383
Station 1	8 42	24.060	66	23.985
2		24.750	64.5	24.684
3		26.225	60	26.173
4		27.446	58	27.383
Station 1	8 43	24.060	66	23.985
2		24.750	64.5	24.684
3		26.225	60	26.173
4		27.446	58	27.383
Station 1	8 44	24.060	66	23.985
2		24.750	64.5	24.684
3		26.225	60	26.173
4		27.446	58	27.383
Station 1	8 45	24.060	67	23.983
2		24.750	64.5	24.687
3		26.225	60.5	26.172
4		27.446	58	27.381
Station 1	8 46	24.060	67	23.983
2		24.757	64.5	24.694
3		26.225	60.5	26.172
4		27.449	59	27.381
Station 1	8 47	24.060	67	23.982
2		24.750	64.5	24.680
3		26.225	60	26.173
4		27.448	59	27.381
Station 1	8 48	24.060	67	23.982
2		24.750	64.5	24.693
3		26.225	60	26.173
4		27.446	59	27.381
Station 1	8 49	24.060	67.5	23.982
2		24.750	64.5	24.693
3		26.225	60	26.173
4		27.448	59	27.381
Station 1	8 50	24.060	67	23.982
2		24.750	64.5	24.694
3		26.225	60	26.173
4		27.448	59	27.381
Station 1	8 51	24.060	67	23.982
2		24.749	64.5	24.692
3		26.226	60.5	26.172
4		27.447	59.5	27.381
Station 1	8 52	24.060	67	23.982
2		24.749	64.5	24.692
3		26.225	60.5	26.172
4		27.447	59.5	27.381
Station 1	8 53	24.060	67	23.982
2		24.749	64.5	24.692
3		26.225	60.5	26.172
4		27.448	59	27.381

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Station 1	8 9	24.055	66.5	23.978	Station 1	8 24	24.055	66	23.980	Station 1	8 39	24.060	66	23.985	Station 1	8 54	24.060	67	23.982
2		24.738	65	24.686	2		24.740	70	24.677	2		24.752	72.5	24.684	2		24.742	65	24.690
3		26.235	61	26.171	3		26.235	61	26.171	3		26.235	60	26.173	3		26.235	60.5	26.172
4		27.447	58	27.384	4		27.447	58	27.384	4		27.447	58.5	27.383	4		27.447	59	27.380
Station 1	8 10	24.060	65	23.987	Station 1	8 25	24.055	66	23.980	Station 1	8 40	24.060	66	23.985	Station 1	8 55	24.060	67	23.982
2		24.738	65	24.686	2		24.740	70	24.677	2		24.752	72.5	24.684	2		24.739	65	24.687
3		26.235	61	26.171	3		26.235	61	26.171	3		26.235	60.5	26.172	3		26.235	61	26.171
4		27.447	58	27.384	4		27.447	58	27.384	4		27.447	58.5	27.383	4		27.447	59	27.380
Station 1	8 11	24.060	65	23.987	Station 1	8 26	24.055	66	23.980	Station 1	8 41	24.060	66	23.985	Station 1	8 56	24.060	67	23.982
2		24.738	65	24.686	2		24.740	70.5	24.676	2		24.752	72.5	24.684	2		24.739	65	24.687
3		26.235	61	26.171	3		26.235	61	26.171	3		26.235	60.5	26.172	3		26.235	61	26.171
4		27.447	58	27.384	4		27.448	58	27.385	4		27.447	58.5	27.383	4		27.447	59	27.380
Station 1	8 12	24.060	65	23.987	Station 1	8 27	24.058	66	23.983	Station 1	8 42	24.060	66.5	23.983	Station 1	8 57	24.060	67	23.982
2		24.730	66	24.676	2		24.740	71	24.675	2		24.751	71	24.686	2		24.740	65	24.688
3		26.235	61	26.171	3		26.235	60	26.173	3		26.235	60.5	26.172	3		26.235	61	26.171
4		27.448	58	27.385	4		27.448	58	27.385	4		27.446	59	27.379	4		27.447	59	27.380
Station 1	8 13	24.060	65	23.987	Station 1	8 28	24.058	66	23.983	Station 1	8 43	24.060	66.5	23.983	Station 1	8 58	24.060	67	23.982
2		24.730	66	24.676	2		24.744	71	24.679	2		24.751	71	24.686	2		24.740	65	24.688
3		26.235	60	26.173	3		26.235	61	26.173	3		26.235	60.5	26.172	3		26.235	61	26.171
4		27.448	58	27.385	4		27.448	58	27.385	4		27.446	59	27.379	4		27.447	59	27.380
Station 1	8 14	24.060	65	23.987	Station 1	8 29	24.058	66	23.983	Station 1	8 44	24.060	66.5	23.983	Station 1	8 59	24.060	67	23.982
2		24.739	67	24.683	2		24.744	72	24.677	2		24.750	70.5	24.686	2		24.740	65	24.688
3		26.235	60	26.173	3		26.235	60	26.173	3		26.235	60.5	26.172	3		26.235	61	26.171
4		27.448	58	27.385	4		27.448	58	27.385	4		27.448	59	27.381	4		27.447	59	27.380

Station No. 1.—Summit of Mount Washington. Elevation of barometer above sea-level .. 6,285.4 feet.
Station No. 2.—Above Jacob's Ladder. Elevation of barometer above sea-level..... 5,553.3 feet.
Station No. 3.—Waumbeck House. Elevation of barometer above sea-level ..... 4,058.7 feet.
Station No. 4.—Base of Mount Washington. Elevation of barometer above sea-level ..... 2,898.3 feet.

[NOTE.—Barometer-readings corrected for temperature and instrumental error only.

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Meteorological record for June 10, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	a. m.			
Station 1	8 0	23.900	58	23.843
2		24.598	63.5	24.549
3		26.058	60	25.996
4		27.267	60	27.200
Station 1	8 1	23.900	58	23.843
2		24.598	63.5	24.549
3		26.058	60	25.996
4		27.267	60	27.200
Station 1	8 2	23.900	58.5	23.843
2		24.599	63.5	24.550
3		26.058	60	25.996
4		27.267	60	27.200
Station 1	8 3	23.900	58	23.843
2		24.599	64	24.548
3		26.058	60	25.996
4		27.267	60	27.200
Station 1	8 4	23.900	58	23.843
2		24.599	64	24.548
3		26.058	60	25.996
4		27.267	60	27.200
Station 1	8 5	23.900	58	23.842
2		24.599	64	24.548
3		26.058	60	25.996
4		27.267	60	27.200
Station 1	8 6	23.900	58	23.843
2		24.599	63.5	24.550
3		26.058	64.5	25.997
4		27.267	60	27.200
Station 1	8 7	23.900	58	23.843
2		24.599	63.5	24.550
3		26.058	64.5	25.997
4		27.267	60	27.200
Station 1	8 8	23.900	58	23.842
2		24.599	63	24.551
3		26.058	60	25.997
4		27.267	60	27.200
Station 1	8 15	23.900	58.5	23.841
2		24.597	62	24.552
3		26.060	59	26.000
4		27.264	60	27.197
Station 1	8 16	23.900	58.5	23.841
2		24.597	62	24.552
3		26.060	60	25.998
4		27.264	60	27.197
Station 1	8 17	23.900	58.5	23.841
2		24.597	61.5	24.553
3		26.060	60	25.998
4		27.264	60	27.197
Station 1	8 18	23.900	58.5	23.841
2		24.597	61	24.556
3		26.060	60	25.998
4		27.263	60	27.196
Station 1	8 19	23.900	58.5	23.841
2		24.597	61	24.556
3		26.060	60	25.999
4		27.263	60	27.196
Station 1	8 20	23.900	59.5	23.841
2		24.597	61	24.556
3		26.060	59.5	25.999
4		27.262	60	27.195
Station 1	8 21	23.900	59	23.840
2		24.596	60.5	24.546
3		26.060	60	25.998
4		27.262	60	27.195
Station 1	8 22	23.900	59	23.840
2		24.596	61	24.547
3		26.060	60	25.998
4		27.262	60	27.195
Station 1	8 [illegible]	23.900	59	23.840
2		24.596	60	24.546
3		26.060	61	25.998
4		27.261	60	27.194
Station 1	8 30	23.900	60	23.837
2		24.596	60.5	24.538
3		26.060	61	25.996
4		27.259	61	27.189
Station 1	8 31	23.900	60	23.837
2		24.596	60.5	24.538
3		26.060	61	25.996
4		27.259	61	27.189
Station 1	8 32	23.900	60	23.837
2		24.596	60.5	24.538
3		26.060	61	25.996
4		27.259	61	27.189
Station 1	8 33	23.900	60	23.837
2		24.596	60.5	24.538
3		26.063	61	25.996
4		27.259	61	27.189
Station 1	8 34	23.900	60	23.837
2		24.596	60.5	24.538
3		26.060	61	25.996
4		27.258	61	27.188
Station 1	8 35	23.900	60.5	23.837
2		24.596	60.5	24.538
3		26.060	61	25.996
4		27.258	61	27.188
Station 1	8 36	23.900	60	23.837
2		24.596	60	24.539
3		26.060	61.5	25.995
4		27.258	61	27.188
Station 1	8 37	23.900	60	23.842
2		24.596	60	24.540
3		26.060	61.5	25.995
4		27.254	61	27.184
Station 1	8 [illegible]	23.900	60	23.842
2		24.596	60	24.540
3		26.060	61	25.995
4		27.254	61	27.184
Station 1	8 45	23.905	60	23.843
2		24.596	59	24.541
3		26.060	62	25.993
4		27.255	61	27.185
Station 1	8 46	23.905	60	23.842
2		24.596	59	24.541
3		26.060	62	25.993
4		27.255	61	27.185
Station 1	8 47	23.905	60	23.842
2		24.596	59	24.541
3		26.060	62	25.993
4		27.255	61	27.185
Station 1	8 48	23.905	60	23.842
2		24.596	58	24.543
3		26.060	62	25.993
4		27.256	61	27.186
Station 1	8 49	23.905	60	23.842
2		24.596	58	24.543
3		26.060	62	25.993
4		27.257	61	27.187
Station 1	8 50	23.905	60	23.842
2		24.596	58	24.543
3		26.060	62	25.993
4		27.257	61.5	27.186
Station 1	8 51	23.905	60	23.842
2		24.596	58	24.543
3		26.060	61.5	25.995
4		27.257	61.5	27.186
Station 1	8 52	23.905	60	23.842
2		24.596	58.5	24.542
3		26.060	63	25.995
4		27.255	61.5	27.184
Station 1	8 53	23.905	60	23.842
2		24.596	58.5	24.542
3		26.060	62.5	25.995
4		27.255	61.5	27.184

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Meteorological record for June 11, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Station 1	2 0	23.762	67	23.684
2		24.470	59	24.433
3		25.988	70	25.903
4		27.179	67	27.096
Station 1	2 1	23.762	67	23.684
2		24.470	59	24.433
3		25.988	70	25.903
4		27.179	67	27.096
Station 1	2 2	23.762	67	23.684
2		24.470	59	24.433
3		25.988	70	25.903
4		27.179	67	27.096
Station 1	2 3	23.762	67	23.684
2		24.468	58.5	24.433
3		25.988	68.5	25.906
4		27.179	67	27.096
Station 1	2 4	23.762	67	23.684
2		24.470	58	24.435
3		25.988	68	25.907
4		27.179	67	27.096
Station 1	2 5	23.765	67	23.687
2		24.475	57.5	24.441
3		25.988	70	25.910
4		27.179	67	27.096
Station 1	2 6	23.770	66.5	23.693
2		24.475	58	24.440
3		25.988	67	25.910
4		27.179	67	27.096
Station 1	2 7	23.770	66.5	23.693
2		24.475	58.5	24.439
3		25.988	66.5	25.911
4		27.181	67	27.099
Station 1	2 8	23.770	66.5	23.693
2		24.475	59	24.434
3		25.988	70	25.903
4		27.179	67	27.096
Station 1	2 9	23.752	65	23.678
2		24.473	61.5	24.429
3		25.990	65.5	25.915
4		27.184	67	27.101
Station 1	2 10	23.752	65	23.679
2		24.475	63	24.430
3		25.985	65.5	25.910
4		27.184	67	27.101
Station 1	2 11	23.752	65	23.679
2		24.470	62.5	24.423
3		25.985	66	25.909
4		27.184	67	27.101
Station 1	2 12	23.752	65	23.679
2		24.470	62.5	24.423
3		25.985	66	25.909
4		27.184	67	27.101
Station 1	2 13	23.752	65	23.679
2		24.470	62.5	24.422
3		25.985	66	25.909
4		27.184	67	27.101
Station 1	2 14	23.752	65	23.679
2		24.475	63	24.427
3		25.985	65	25.911
4		27.184	67	27.101
Station 1	2 15	23.752	65	23.679
2		24.477	63.5	24.430
3		25.985	65	25.911
4		27.184	67	27.101
Station 1	2 16	23.760	63	23.687
2		24.490	64	24.440
3		25.985	64.5	25.913
4		27.184	67	27.101
Station 1	2 17	23.765	63	23.687
2		24.477	63.5	24.440
3		25.985	65	25.911
4		27.184	67	27.101
Station 1	2 18	23.765	63	23.687
2		24.477	63.5	24.440
3		25.985	65	25.911
4		27.184	67	27.101
Station 1	2 19	23.765	63	23.687
2		24.477	63.5	24.440
3		25.985	65	25.911
4		27.184	67	27.101
Station 1	2 20	23.765	63	23.687
2		24.477	63.5	24.440
3		25.985	65	25.911
4		27.184	67	27.101
Station 1	2 21	23.765	63	23.687
2		24.477	63.5	24.440
3		25.985	65	25.911
4		27.184	67	27.101
Station 1	2 22	23.760	63	23.687
2		24.490	64	24.435
3		25.985	64.5	25.913
4		27.184	67	27.101
Station 1	2 23	23.765	63	23.687
2		24.477	63.5	24.440
3		25.985	65	25.911
4		27.184	67	27.101
Station 1	2 24	23.765	63	23.687
2		24.477	63.5	24.440
3		25.985	65	25.911
4		27.184	67	27.101
Station 1	2 25	23.765	63	23.687
2		24.477	63.5	24.440
3		25.985	65	25.911
4		27.184	67	27.101
Station 1	2 26	23.765	63	23.687
2		24.475	63.5	24.435
3		25.985	65	25.911
4		27.184	67	27.101
Station 1	2 27	23.765	63	23.687
2		24.475	63.5	24.435
3		25.985	65	25.911
4		27.184	67	27.101
Station 1	2 28	23.765	63	23.687
2		24.475	63.5	24.435
3		25.985	65	25.911
4		27.184	67	27.101
Station 1	2 29	23.765	63	23.687
2		24.475	63.5	24.435
3		25.985	65	25.911
4		27.184	67	27.101
Station 1	2 30	23.760	65	23.687
2		24.485	65.5	24.432
3		25.990	64	25.909
4		27.188	67	27.105
Station 1	2 31	23.760	63	23.687
2		24.483	66	24.429
3		25.990	64	25.909
4		27.189	67	27.106
Station 1	2 32	23.755	66.5	23.683
2		24.485	66.5	24.430
3		25.990	64	25.909
4		27.190	67	27.107
Station 1	2 33	23.755	65	23.682
2		24.487	66.5	24.433
3		25.990	63.5	25.910
4		27.190	67	27.107
Station 1	2 34	23.755	65	23.682
2		24.490	67	24.434
3		25.990	63.5	25.910
4		27.192	67	27.109
Station 1	2 35	23.755	65	23.682
2		24.490	67.5	24.433
3		25.990	63	25.911
4		27.192	67	27.109
Station 1	2 36	23.753	63	23.682
2		24.488	67.5	24.431
3		25.990	63	25.911
4		27.192	67	27.109
Station 1	2 37	23.755	63	23.682
2		24.493	66	24.435
3		25.990	63	25.911
4		27.193	67	27.110
Station 1	2 38	23.755	65	23.682
2		24.497	63	24.430
3		25.990	63	25.911
4		27.193	67	27.110

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Meteorological record for June 12, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Station 1	2 0	23.940	65	23.867
2		24.630	58	24.563
3		26.160	68	26.079
4		27.396	59	27.321
Station 1	2 1	23.940	65	23.867
2		24.630	57.5	24.594
3		26.190	68	26.079
4		27.396	59	27.321
Station 1	2 2	23.940	65	23.867
2		24.628	57	24.594
3		26.160	67.5	26.081
4		27.396	59	27.321
Station 1	2 3	23.940	63	23.867
2		24.628	57	24.594
3		26.160	67	26.082
4		27.397	59	27.322
Station 1	2 4	23.940	64	23.869
2		24.630	57	24.596
3		26.160	66.5	26.083
4		27.397	59	27.324
Station 1	2 5	23.940	64	23.869
2		24.630	57	24.596
3		26.160	66	26.084
4		27.399	59	27.324
Station 1	2 6	23.935	63	23.866
2		24.630	57	24.596
3		26.161	66	26.085
4		27.399	59	27.324
Station 1	2 7	24.620	57	24.580
2		26.161	66.5	26.086
3		27.399	59	27.324
4		27.400	59	27.324
Station 1	2 8	23.925	63	23.856
2		24.630	57	24.589
3		26.161	66.5	26.086
4		27.391	59	27.321
Station 1	2 9	23.925	63	23.856
2		24.630	57	24.589
3		26.161	66.5	26.086
4		27.391	59	27.321
Station 1	2 10	23.925	63	23.856
2		24.630	57	24.589
3		26.160	66.5	26.085
4		27.391	59	27.321
Station 1	2 11	23.925	63	23.856
2		24.630	57	24.589
3		26.161	66	26.086
4		27.391	59	27.321
Station 1	2 12	23.925	63	23.856
2		24.630	57	24.589
3		26.161	66	26.086
4		27.391	59	27.321
Station 1	2 13	23.930	62	23.858
2		24.628	57	24.596
3		26.160	64.5	26.093
4		27.392	59.5	27.322
Station 1	2 14	23.930	62	23.858
2		24.628	57	24.596
3		26.160	64.5	26.093
4		27.392	59.5	27.322
Station 1	2 15	23.930	62	23.858
2		24.628	57	24.596
3		26.160	64.5	26.093
4		27.390	59.5	27.322
Station 1	2 16	23.925	62	23.863
2		24.625	57	24.594
3		26.160	64.5	26.094
4		27.396	59.5	27.326
Station 1	2 17	23.930	62	23.863
2		24.628	57	24.594
3		26.160	64.5	26.094
4		27.392	59.5	27.326
Station 1	2 18	23.930	62	23.863
2		24.628	57.5	24.594
3		26.161	64.5	26.095
4		27.392	59.5	27.326
Station 1	2 19	23.930	62	23.863
2		24.630	57.5	24.594
3		26.163	64.5	26.096
4		27.393	59.5	27.326
Station 1	2 20	23.930	62	23.863
2		24.625	57.5	24.589
3		26.162	64.5	26.095
4		27.392	59.5	27.326
Station 1	2 21	23.930	62	23.863
2		24.625	57.5	24.589
3		26.162	64.5	26.095
4		27.392	59.5	27.326
Station 1	2 22	23.925	62	23.858
2		24.625	57	24.591
3		26.161	64.5	26.095
4		27.392	59.5	27.326
Station 1	2 23	23.925	62	23.858
2		24.625	57	24.591
3		26.161	64.5	26.095
4		27.392	59.5	27.326
Station 1	2 24	23.925	62	23.858
2		24.625	57	24.591
3		26.161	64.5	26.095
4		27.392	59.5	27.326
Station 1	2 25	23.925	62	23.858
2		24.630	57	24.596
3		26.163	64.5	26.093
4		27.392	59.5	27.322
Station 1	2 26	23.925	62	23.858
2		24.630	57	24.596
3		26.163	64.5	26.093
4		27.392	59.5	27.322
Station 1	2 27	23.925	62	23.858
2		24.630	57	24.596
3		26.163	64.5	26.093
4		27.392	59.5	27.322
Station 1	2 28	23.925	62	23.858
2		24.630	57	24.596
3		26.163	64.5	26.093
4		27.392	59.5	27.322
Station 1	2 29	23.925	62	23.858
2		24.630	57	24.596
3		26.163	64.5	26.093
4		27.392	59.5	27.322
Station 1	2 30	23.925	62	23.858
2		24.630	57	24.596
3		26.163	64.5	26.093
4		27.392	59.5	27.322
Station 1	2 31	23.925	62	23.858
2		24.630	57	24.596
3		26.164	64	26.093
4		27.392	60	27.322
Station 1	2 32	23.925	62	23.858
2		24.630	57	24.596
3		26.165	64.5	26.093
4		27.393	60	27.324
Station 1	2 33	23.925	62	23.858
2		24.630	57	24.596
3		26.165	64.5	26.093
4		27.389	60.5	27.320
Station 1	2 34	23.925	62	23.858
2		24.625	57	24.591
3		26.163	64	26.092
4		27.389	60.5	27.320
Station 1	2 35	23.930	62	23.863
2		24.625	57	24.591
3		26.162	64.5	26.090
4		27.389	60.5	27.320
Station 1	2 36	23.930	62	23.863
2		24.628	57.5	24.593
3		26.161	64.5	26.090
4		27.390	60.5	27.321
Station 1	2 37	23.923	62	23.856
2		24.628	57.5	24.593
3		26.161	64.5	26.090
4		27.390	60.5	27.321
Station 1	2 38	23.923	62	23.856
2		24.630	57.5	24.595
3		26.160	64.5	26.089
4		27.390	60.5	27.321
Station 1	2 39	23.928	62	23.861
2		24.630	59.5	24.590
3		26.161	65.5	26.096
4		27.390	60.5	27.321
Station 1	2 40	23.928	62	23.861
2		24.630	59.5	24.590
3		26.161	65.5	26.096
4		27.389	60	27.320
Station 1	2 41	23.928	62	23.861
2		24.630	59.5	24.590
3		26.161	65.5	26.096
4		27.390	60.5	27.321
Station 1	2 42	23.928	62	23.861
2		24.630	59.5	24.590
3		26.161	65.5	26.096
4		27.390	60.5	27.321
Station 1	2 43	23.928	62	23.861
2		24.630	59.5	24.590
3		26.161	65.5	26.096
4		27.390	60.5	27.321
Station 1	2 44	23.928	62	23.861
2		24.630	59.5	24.590
3		26.161	65.5	26.096
4		27.390	60.5	27.321
Station 1	2 45	23.928	62	23.861
2		24.630	59.5	24.590
3		26.161	65.5	26.096
4		27.390	60.5	27.321
Station 1	2 46	23.928	62	23.861
2		24.630	59.5	24.590
3		26.161	65.5	26.096
4		27.390	60.5	27.321
Station 1	2 47	23.930	62	23.861
2		24.630	60	24.589
3		26.161	65.5	26.096
4		27.390	60.5	27.321
Station 1	2 48	23.925	62	23.858
2		24.630	60	24.589
3		26.160	65.5	26.095
4		27.389	60	27.320
Station 1	2 49	23.925	62	23.858
2		24.625	60	24.594
3		26.160	65.5	26.095
4		27.389	60	27.320
Station 1	2 50	23.922	61.5	23.856
2		24.623	60.5	24.587
3		26.162	65.5	26.097
4		27.389	60	27.320
Station 1	2 51	23.923	61	23.856
2		24.640	60	24.597
3		26.161	66	26.095
4		27.388	60	27.321
Station 1	2 52	23.922	61.5	23.856
2		24.640	61.5	24.596
3		26.161	66	26.094
4		27.389	60	27.321
Station 1	2 53	23.922	61.5	23.856
2		24.640	61.5	24.596
3		26.161	66	26.094
4		27.389	60	27.321
Station 1	2 54	23.922	61.5	23.856
2		24.640	61.5	24.596
3		26.161	66	26.094
4		27.389	60	27.321
Station 1	2 55	23.922	61.5	23.856
2		24.640	61.5	24.596
3		26.161	66	26.094
4		27.389	60	27.321

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Station 1			23.940	63	23.871	Station 1			23.925	62	23.858	Station 1			23.925	62	23.858	Station 1			23.922	61.5	23.856
2	2 9		24.630	57	24.596	2	2 24		24.625	57	24.591	2	2 39		24.630	58	24.593	2	2 54		24.643	62.5	24.596
3			26.160	65.5	26.085	3			26.162	64	26.091	3			26.160	64.5	26.088	3			26.170	65.5	26.095
4			27.390	59	27.325	4			27.391	60.5	27.325	4			27.391	60.5	27.322	4			27.386	60	27.319
Station 1			23.940	63	23.871	Station 1			23.925	62	23.858	Station 1			23.925	62	23.858	Station 1			23.925	61.5	23.859
2	2 10		24.630	57	24.596	2	2 25		24.625	57	24.591	2	2 40		24.630	58.5	24.592	2	2 55		24.643	62.5	24.596
3			26.160	65	26.086	3			26.162	64	26.091	3			26.160	65	26.086	3			26.168	66	26.092
4			27.390	59	27.325	4			27.390	59.5	27.324	4			27.391	60.5	27.322	4			27.387	60	27.320
Station 1			23.940	63	23.871	Station 1			23.925	62	23.858	Station 1			23.925	62	23.858	Station 1			23.925	61.5	23.859
2	2 11		24.630	57	24.596	2	2 26		24.625	57	24.591	2	2 41		24.630	58.5	24.592	2	2 56		24.643	63	24.595
3			26.160	65	26.086	3			26.162	64	26.091	3			26.160	65	26.086	3			26.168	66	26.092
4			27.390	59	27.325	4			27.390	60	27.323	4			27.391	60.5	27.322	4			27.388	60	27.321
Station 1			23.938	62.5	23.870	Station 1			23.925	62	23.858	Station 1			23.928	62	23.861	Station 1			23.930	61	23.865
2	2 12		24.630	57.5	24.594	2	2 27		24.625	57	24.591	2	2 42		24.630	59	24.591	2	2 57		24.643	63	24.595
3			26.160	65	26.086	3			26.162	64	26.091	3			26.160	65	26.086	3			26.168	66	26.092
4			27.390	59	27.325	4			27.389	60	27.322	4			27.391	60.5	27.322	4			27.388	60	27.321
Station 1			23.938	62.5	23.870	Station 1			23.925	62	23.858	Station 1			23.928	62	23.861	Station 1			23.930	61	23.865
2	2 13		24.630	57.5	24.594	2	2 28		24.628	57	24.594	2	2 43		24.630	59	24.591	2	2 58		24.643	63	24.595
3			26.160	65	26.086	3			26.162	64	26.091	3			26.160	65	26.086	3			26.168	65.5	26.091
4			27.390	59	27.325	4			27.389	60	27.322	4			27.390	60.5	27.321	4			27.389	60	27.322
Station 1			23.938	62.5	23.870	Station 1			23.925	62	23.858	Station 1			23.928	62	23.861	Station 1			23.930	61	23.865
2	2 14		24.628	57.5	24.592	2	2 29		24.630	57	24.596	2	2 44		24.630	59	24.591	2	2 59		24.643	63.5	24.594
3			26.160	65	26.086	3			26.164	64	26.093	3			26.160	65.5	26.085	3			26.168	65.5	26.091
4			27.390	59	27.325	4			27.389	60	27.322	4			27.390	60.5	27.321	4			27.390	60	27.323

Station No. 1.—Summit of Mount Washington. Elevation of barometer above sea-level.. 6,285.4 feet.
Station No. 2.—Above Jacob's Ladder. Elevation of barometer above sea-level ..... 5,553.3 feet.
Station No. 3.—Waumbeck House. Elevation of barometer above sea-level ..... 4,858.7 feet.
Station No. 4.—Base of Mount Washington. Elevation of barometer above sea-level..... 2,898.3 feet.

NOTE.—Barometer-readings corrected for temperature and instrumental error only.

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Meteorological record for June 13, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Station 1	0	24.100	62	24.020
2		24.750	62	24.705
3		26.260	66	26.177
4		27.469	66	27.387
Station 1	1	24.100	64	24.020
2		24.750	62	24.705
3		26.260	68	26.177
4		27.469	66	27.387
Station 1	2	24.100	68	24.020
2		24.750	62	24.705
3		26.260	68	26.177
4		27.469	66	27.387
Station 1	3	24.110	68.5	24.030
2		24.750	64	24.705
3		26.260	68	26.177
4		27.469	66	27.387
Station 1	4	24.100	68.5	24.019
2		24.750	64	24.705
3		26.260	68	26.177
4		27.469	66	27.387
Station 1	5	24.100	68.5	24.019
2		24.750	64	24.705
3		26.260	68	26.177
4		27.469	66	27.387
Station 1	6	24.100	68.5	24.018
2		24.750	64	24.706
3		26.260	68	26.177
4		27.469	66	27.387
Station 1	7	24.100	68.5	24.016
2		24.750	64	24.706
3		26.260	68	26.175
4		27.469	66	27.387
Station 1	8	24.100	68.5	24.016
2		24.750	64	24.706
3		26.260	68	26.175
4		27.469	66	27.387
Station 1	9	24.100	68.5	24.016
2		24.750	64	24.706
3		26.260	68	26.175
4		27.469	66	27.387
Station 1	10	24.100	68.5	24.016
2		24.750	64	24.706
3		26.260	68	26.175
4		27.469	66	27.387
Station 1	11	24.100	68.5	24.016
2		24.750	64	24.706
3		26.260	68	26.175
4		27.469	66	27.387
Station 1	12	24.100	68.5	24.016
2		24.750	64	24.706
3		26.260	68	26.175
4		27.469	66	27.387
Station 1	13	24.100	68.5	24.016
2		24.750	64	24.706
3		26.260	68	26.175
4		27.469	66	27.387
Station 1	14	24.100	68.5	24.016
2		24.750	64	24.706
3		26.260	68	26.175
4		27.469	66	27.387
Station 1	15	24.085	71	24.009
2		24.745	61	24.702
3		26.258	70	26.171
4		27.471	67.5	27.385
Station 1	16	24.095	71	24.009
2		24.743	60.5	24.701
3		26.258	70	26.171
4		27.471	67.5	27.385
Station 1	17	24.095	71	24.008
2		24.743	60.5	24.701
3		26.253	69.5	26.169
4		27.470	68	27.383
Station 1	18	24.095	71	24.009
2		24.745	60.5	24.703
3		26.255	69.5	26.169
4		27.469	68	27.382
Station 1	19	24.096	71	24.019
2		24.745	60.5	24.703
3		26.255	69	26.170
4		27.469	68	27.382
Station 1	20	24.096	71	24.012
2		24.743	60.5	24.701
3		26.253	69	26.170
4		27.469	68	27.382
Station 1	21	24.040	71	24.004
2		24.743	60.5	24.701
3		26.253	69	26.170
4		27.471	68	27.384
Station 1	22	24.090	71	24.004
2		24.743	60.5	24.701
3		26.258	69.5	26.171
4		27.471	68	27.384
Station 1	23	24.090	71	24.004
2		24.743	60.5	24.701
3		26.258	69.5	26.171
4		27.472	68	27.385
Station 1	24	24.090	71.5	24.003
2		24.743	61	24.700
3		26.258	70	26.172
4		27.470	67	27.383
Station 1	25	24.090	71.5	24.003
2		24.743	60.5	24.701
3		26.260	70	26.172
4		27.470	67	27.383
Station 1	26	24.090	71.5	24.003
2		24.743	60.5	24.701
3		26.258	70	26.169
4		27.470	67	27.385
Station 1	27	24.090	71.5	24.004
2		24.743	60.5	24.701
3		26.258	70	26.169
4		27.470	67	27.385
Station 1	28	24.090	71.5	24.004
2		24.743	60.5	24.701
3		26.258	70	26.170
4		27.470	67.5	27.384
Station 1	29	24.090	71	24.004
2		24.743	60.5	24.701
3		26.258	70	26.170
4		27.470	67.5	27.384
Station 1	30	24.090	71	24.004
2		24.743	60.5	24.701
3		26.258	70	26.170
4		27.470	67.5	27.384
Station 1	31	24.090	71	24.004
2		24.743	60.5	24.701
3		26.258	70	26.170
4		27.470	67.5	27.384
Station 1	32	24.090	71	24.004
2		24.743	60.5	24.701
3		26.258	70	26.170
4		27.470	67	27.385
Station 1	33	24.090	71	24.004
2		24.743	60.5	24.701
3		26.258	70	26.169
4		27.470	67	27.385
Station 1	34	24.090	71	24.004
2		24.743	60.5	24.701
3		26.258	70	26.170
4		27.470	67.5	27.384
Station 1	35	24.090	71	24.004
2		24.743	60.5	24.701
3		26.258	70	26.170
4		27.470	67.5	27.383
Station 1	36	24.090	71.5	24.003
2		24.743	61	24.700
3		26.258	69.5	26.171
4		27.470	68	27.383
Station 1	37	24.090	71.5	24.003
2		24.743	61	24.700
3		26.258	69.5	26.171
4		27.472	68	27.385
Station 1	38	24.090	71.5	24.003
2		24.744	61	24.700
3		26.255	69.5	26.171
4		27.471	68	27.384
Station 1	39	24.090	71.5	24.003
2		24.744	61	24.700
3		26.255	69.5	26.171
4		27.471	68	27.384
Station 1	40	24.090	71	24.004
2		24.738	60	24.697
3		26.255	69.5	26.169
4		27.470	68.5	27.380
Station 1	41	24.090	71	24.006
2		24.738	60	24.697
3		26.255	69.5	26.168
4		27.469	68.5	27.380
Station 1	42	24.090	71	24.006
2		24.738	60	24.697
3		26.255	69.5	26.169
4		27.469	68.5	27.380
Station 1	43	24.090	71	24.006
2		24.738	60	24.697
3		26.255	69.5	26.169
4		27.470	68.5	27.380
Station 1	44	24.090	71	24.005
2		24.738	59.5	24.698
3		26.252	69	26.167
4		27.469	68	27.379
Station 1	45	24.090	71	24.004
2		24.740	60	24.699
3		26.258	70	26.170
4		27.470	69	27.380
Station 1	46	24.090	70	24.006
2		24.740	60	24.699
3		26.258	70	26.171
4		27.469	68.5	27.380
Station 1	47	24.090	70	24.006
2		24.738	60	24.697
3		26.255	70	26.168
4		27.469	68.5	27.380
Station 1	48	24.090	70	24.006
2		24.738	60	24.697
3		26.255	69.5	26.169
4		27.470	68.5	27.380
Station 1	49	24.090	70	24.006
2		24.738	60	24.697
3		26.255	69.5	26.169
4		27.470	68.5	27.380
Station 1	50	24.090	70.5	24.005
2		24.738	59.5	24.698
3		26.252	69	26.167
4		27.469	68	27.379
Station 1	51	24.090	71	24.004
2		24.738	59.5	24.698
3		26.253	69	26.167
4		27.471	68	27.381
Station 1	52	24.090	71	24.004
2		24.738	59.5	24.698
3		26.253	69	26.167
4		27.471	68.5	27.380
Station 1	53	24.090	71	24.004
2		24.738	59.5	24.698
3		26.253	69.5	26.167
4		27.471	68.5	27.380

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Meteorological record for June 14, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Station 1	9 0	23.955	64	23.877
2		24.615	65	24.564
3		26.095	64	26.022
4		27.314	65.5	27.242
Station 1	9 1	23.950	64	23.872
2		24.615	64	24.563
3		26.095	64	26.024
4		27.314	66	27.242
Station 1	9 2	23.950	64	23.872
2		24.615	65	24.563
3		26.095	64	26.024
4		27.312	66	27.240
Station 1	9 3	23.955	65	23.882
2		24.615	65	24.563
3		26.095	64	26.024
4		27.311	66	27.239
Station 1	9 4	23.955	65	23.882
2		24.615	65	24.563
3		26.095	64.5	26.023
4		27.312	66.5	27.240
Station 1	9 5	23.953	65	23.880
2		24.615	65.5	24.563
3		26.095	65	26.024
4		27.311	66.5	27.237
Station 1	9 6	23.955	65	23.882
2		24.615	65.5	24.563
3		26.095	64.5	26.023
4		27.311	67	27.236
Station 1	9 7	23.955	65	23.882
2		24.615	66	24.563
3		26.095	64.5	26.023
4		27.314	67	27.239
Station 1	9 8	23.955	65	23.882
2		24.615	66.5	24.563
3		26.095	64.5	26.023
4		27.312	67	27.237
Station 1	9 9	23.960	65	23.877
2		24.615	67	24.564
3		26.095	65	26.022
4		27.311	67	27.239
Station 1	9 10	23.950	66	23.872
2		24.615	67	24.563
3		26.095	65	26.024
4		27.313	67	27.241
Station 1	9 11	23.950	66	23.872
2		24.615	67	24.563
3		26.095	65	26.024
4		27.313	67	27.241
Station 1	9 12	23.950	66	23.872
2		24.615	67	24.563
3		26.095	65	26.024
4		27.313	67	27.241
Station 1	9 13	23.950	66	23.872
2		24.615	67	24.563
3		26.095	65	26.024
4		27.313	67	27.241
Station 1	9 14	23.950	66	23.872
2		24.615	67	24.563
3		26.095	65	26.024
4		27.313	67	27.241
Station 1	9 15	23.960	65	23.877
2		24.615	67	24.564
3		26.095	65	26.022
4		27.311	67	27.239
Station 1	9 16	23.950	66	23.872
2		24.615	67	24.563
3		26.095	65	26.024
4		27.313	67	27.241
Station 1	9 17	23.950	66	23.872
2		24.615	67	24.563
3		26.095	65	26.024
4		27.313	67	27.241
Station 1	9 18	23.950	66	23.872
2		24.615	67	24.563
3		26.095	65	26.024
4		27.313	67	27.241
Station 1	9 19	23.950	66	23.872
2		24.618	67.5	24.566
3		26.095	65	26.024
4		27.313	67	27.241
Station 1	9 20	23.950	66	23.872
2		24.618	67.5	24.566
3		26.098	64.5	26.027
4		27.315	67	27.243
Station 1	9 21	23.950	66	23.872
2		24.618	68	24.566
3		26.098	64.5	26.027
4		27.315	67	27.243
Station 1	9 22	23.950	66.5	23.872
2		24.618	68	24.566
3		26.098	65	26.027
4		27.317	67	27.245
Station 1	9 23	23.950	66	23.872
2		24.618	68	24.566
3		26.098	64.5	26.027
4		27.317	67.5	27.245
Station 1	9 24	23.950	66	23.872
2		24.618	68	24.566
3		26.098	64.5	26.027
4		27.317	67.5	27.245
Station 1	9 25	23.950	66	23.872
2		24.618	68	24.566
3		26.098	64.5	26.027
4		27.317	67.5	27.245
Station 1	9 26	23.950	66	23.872
2		24.618	68	24.566
3		26.098	64.5	26.027
4		27.317	67.5	27.245
Station 1	9 27	23.950	66	23.872
2		24.618	68	24.566
3		26.098	64.5	26.027
4		27.317	67.5	27.245
Station 1	9 28	23.950	66	23.872
2		24.618	68	24.566
3		26.098	64.5	26.027
4		27.317	67.5	27.245
Station 1	9 29	23.950	66	23.872
2		24.618	68	24.566
3		26.098	64.5	26.027
4		27.317	67.5	27.245
Station 1	9 30	23.950	66	23.872
2		24.618	68	24.566
3		26.090	64	26.019
4		27.316	67	27.244
Station 1	9 31	23.950	66.5	23.872
2		24.618	68.5	24.566
3		26.090	63.5	26.019
4		27.316	67	27.244
Station 1	9 32	23.950	66	23.872
2		24.618	68.5	24.566
3		26.090	63.5	26.019
4		27.316	67	27.244
Station 1	9 33	23.950	66	23.872
2		24.618	68.5	24.566
3		26.090	63.5	26.019
4		27.316	67	27.244
Station 1	9 34	23.950	65.5	23.876
2		24.618	69	24.567
3		26.090	63	26.021
4		27.316	67	27.244
Station 1	9 35	23.950	65	23.877
2		24.618	69	24.567
3		26.090	63	26.021
4		27.316	67	27.244
Station 1	9 36	23.950	65	23.877
2		24.618	69	24.567
3		26.090	64.5	26.018
4		27.315	67	27.243
Station 1	9 37	23.950	65	23.877
2		24.620	68.5	24.568
3		26.090	64.5	26.018
4		27.315	67	27.243
Station 1	9 38	23.950	65	23.877
2		24.620	68.5	24.568
3		26.090	64.5	26.018
4		27.315	67	27.243
Station 1	9 39	23.950	65	23.877
2		24.620	68.5	24.568
3		26.090	64.5	26.018
4		27.315	67	27.243
Station 1	9 40	23.950	65	23.877
2		24.620	68.5	24.568
3		26.090	64.5	26.018
4		27.315	67	27.243
Station 1	9 41	23.950	65	23.877
2		24.620	68.5	24.568
3		26.090	64.5	26.018
4		27.315	67	27.243
Station 1	9 42	23.950	65	23.877
2		24.620	68.5	24.568
3		26.090	64.5	26.018
4		27.315	67	27.243
Station 1	9 43	23.950	65	23.877
2		24.620	68.5	24.568
3		26.090	64.5	26.018
4		27.315	67	27.243
Station 1	9 44	23.950	65	23.877
2		24.620	68.5	24.568
3		26.090	64.5	26.018
4		27.315	67	27.243
Station 1	9 45	23.950	65	23.877
2		24.620	68.5	24.568
3		26.090	64.5	26.018
4		27.315	67	27.243
Station 1	9 46	23.950	65	23.877
2		24.620	68.5	24.568
3		26.085	64	26.013
4		27.316	67	27.244
Station 1	9 47	23.950	65	23.877
2		24.620	68.5	24.568
3		26.090	63.5	26.018
4		27.316	67	27.244
Station 1	9 48	23.950	65	23.877
2		24.620	68.5	24.568
3		26.090	63.5	26.018
4		27.316	67	27.244
Station 1	9 49	23.950	65	23.877
2		24.620	68.5	24.568
3		26.084	63	26.012
4		27.316	67	27.244
Station 1	9 50	23.950	65	23.877
2		24.620	68.5	24.568
3		26.085	63	26.013
4		27.316	67	27.244
Station 1	9 51	23.950	65	23.877
2		24.620	68.5	24.568
3		26.085	63	26.013
4		27.316	67	27.244
Station 1	9 52	23.950	65	23.877
2		24.620	68.5	24.568
3		26.085	63	26.013
4		27.316	67	27.244
Station 1	9 53	23.950	65	23.877
2		24.620	68.5	24.568
3		26.085	63	26.013
4		27.316	67	27.244

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Meteorological record for June 15, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Station 1	2 0	23.850	62	23.783
2		24.500	63.5	24.451
3		25.970	65	25.896
4		27.180	71	27.088
Station 1	2 1	23.850	62.5	23.782
2		24.500	63.5	24.451
3		25.969	65	25.895
4		27.180	71	27.088
Station 1	2 2	23.848	62.5	23.780
2		24.500	63.5	24.451
3		25.965	65	25.894
4		27.180	71	27.088
Station 1	2 3	23.848	62.5	23.780
2		24.503	63.5	24.454
3		25.968	65	25.894
4		27.180	71	27.088
Station 1	2 4	23.849	62.5	23.780
2		24.500	63.5	24.451
3		25.968	65	25.894
4		27.181	71	27.089
Station 1	2 5	23.845	63	23.776
2		24.500	63.5	24.451
3		25.970	65	25.896
4		27.182	71	27.090
Station 1	2 6	23.846	63.5	23.776
2		24.503	63.5	24.454
3		25.970	65	25.896
4		27.182	71	27.090
Station 1	2 7	23.846	63.5	23.776
2		24.503	63.5	24.454
3		25.970	65	25.896
4		27.182	71	27.090
Station 1	2 8	23.847	63.5	23.777
2		24.500	63.5	24.451
3		25.970	65	25.896
4		27.180	71	27.088
Station 1	2 9	23.847	63.5	23.777
2		24.500	63.5	24.451
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 10	23.847	63.5	23.777
2		24.500	63.5	24.451
3		25.970	65	25.896
4		27.180	71	27.088
Station 1	2 11	23.847	63.5	23.777
2		24.500	63.5	24.451
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 12	23.847	63.5	23.777
2		24.500	63.5	24.451
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 13	23.847	63.5	23.777
2		24.500	63.5	24.451
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 14	23.846	63.5	23.776
2		24.498	63.5	24.449
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 15	23.846	63.5	23.776
2		24.498	63.5	24.449
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 16	23.846	63.5	23.776
2		24.498	63.5	24.449
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 17	23.846	63.5	23.776
2		24.498	63.5	24.449
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 18	23.846	63.5	23.776
2		24.498	63.5	24.449
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 19	23.846	63.5	23.776
2		24.498	63.5	24.449
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 20	23.846	63.5	23.776
2		24.498	63.5	24.449
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 21	23.846	63.5	23.776
2		24.498	63.5	24.449
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 22	23.846	64	23.776
2		24.498	64	24.449
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 23	23.846	64	23.776
2		24.498	64	24.449
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 24	23.846	64	23.776
2		24.498	64	24.449
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 25	23.846	64	23.776
2		24.498	64	24.449
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 26	23.846	64	23.776
2		24.498	64	24.449
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 27	23.846	64	23.776
2		24.498	64	24.449
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 28	23.846	64	23.776
2		24.498	64	24.449
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 29	23.846	64	23.776
2		24.498	64	24.449
3		25.970	65	25.896
4		27.179	71	27.087
Station 1	2 30	23.846	64	23.776
2		24.495	64	24.448
3		25.970	65	25.896
4		27.178	71	27.086
Station 1	2 31	23.846	64	23.776
2		24.495	63	24.448
3		25.970	65	25.896
4		27.178	71	27.086
Station 1	2 32	23.847	64	23.777
2		24.495	63	24.448
3		25.970	65	25.896
4		27.178	71	27.086
Station 1	2 33	23.844	64	23.773
2		24.493	63.5	24.446
3		25.970	65	25.896
4		27.177	71	27.085
Station 1	2 34	23.844	64.5	23.773
2		24.493	63	24.446
3		25.970	65	25.896
4		27.176	71	27.086
Station 1	2 35	23.844	64.5	23.773
2		24.493	63.5	24.446
3		25.970	65	25.896
4		27.176	71	27.086
Station 1	2 36	23.843	64.5	23.771
2		24.493	63.5	24.446
3		25.965	65	25.891
4		27.176	71	27.085
Station 1	2 37	23.843	64.5	23.771
2		24.490	64	24.445
3		25.965	65	25.891
4		27.175	71	27.085
Station 1	2 38	23.841	64.5	23.769
2		24.490	64	24.445
3		25.965	65	25.891
4		27.175	71	27.085
Station 1	2 39	23.840	64.5	23.768
2		24.490	64	24.445
3		25.965	65	25.891
4		27.174	71	27.084
Station 1	2 40	23.840	64.5	23.768
2		24.490	64	24.445
3		25.965	65	25.891
4		27.174	71	27.084
Station 1	2 41	23.840	64.5	23.768
2		24.490	64	24.445
3		25.965	65	25.891
4		27.174	71	27.084
Station 1	2 42	23.840	64.5	23.768
2		24.490	64	24.445
3		25.965	65	25.891
4		27.174	71	27.084
Station 1	2 43	23.840	64.5	23.768
2		24.490	64	24.445
3		25.965	65	25.891
4		27.174	71	27.084
Station 1	2 44	23.840	64.5	23.768
2		24.490	64	24.445
3		25.965	65	25.891
4		27.174	71	27.084
Station 1	2 45	23.840	64.5	23.768
2		24.490	64	24.445
3		25.965	65	25.891
4		27.174	71	27.084
Station 1	2 46	23.840	64.5	23.768
2		24.490	64	24.445
3		25.965	65	25.891
4		27.174	71	27.084
Station 1	2 47	23.840	64.5	23.768
2		24.490	64	24.445
3		25.965	65	25.891
4		27.174	71	27.084
Station 1	2 48	23.840	64.5	23.768
2		24.490	64	24.445
3		25.965	65	25.891
4		27.174	71	27.084
Station 1	2 49	23.840	64.5	23.768
2		24.490	64	24.445
3		25.965	65	25.891
4		27.174	71	27.084
Station 1	2 50	23.840	64.5	23.768
2		24.490	64	24.445
3		25.965	65	25.891
4		27.174	71	27.084
Station 1	2 51	23.840	64.5	23.768
2		24.490	64	24.445
3		25.965	65	25.891
4		27.174	71	27.084
Station 1	2 52	23.839	64.5	23.767
2		24.490	64	24.445
3		25.965	65	25.891
4		27.174	71	27.084
Station 1	2 53	23.839	64.5	23.767
2		24.490	64	24.445
3		25.965	65	25.891
4		27.174	71	27.084

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Meteorological record for June 16, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
Station 1.	p. m.				Station 1.	p. m.				Station 1.	p. m.			
2.	2 0	23.690	61	23.755	2.	2 15	23.819	60.5	23.755	2.	2 30	23.811	60.5	23.744
3.		24.500	64.5	24.449	3.		24.497	64	24.447	3.		24.485	63	24.437
4.		25.980	69	25.897	4.		25.978	68	25.897	4.		25.980	67.5	25.901
Station 1.		27.170	77.5	27.062	Station 1.		27.166	76	27.054	Station 1.		27.150	76.5	27.044
2.	2 1	24.920	61	23.755	2.	2 16	23.819	60.5	23.755	2.	2 31	23.809	60.5	23.745
3.		24.503	64.5	24.452	3.		24.495	64	24.443	3.		24.485	63	24.437
4.		25.980	69	25.897	4.		25.978	68	25.897	4.		25.980	67.5	25.901
Station 1.		27.170	77.5	27.062	Station 1.		27.163	76	27.054	Station 1.		27.150	76.5	27.044
2.	2 2	23.820	61	23.755	2.	2 17	23.819	60.5	23.755	2.	2 32	23.810	60.5	23.746
3.		24.503	64.5	24.453	3.		24.493	64	24.443	3.		24.485	63	24.438
4.		25.980	69	25.897	4.		25.978	68	25.897	4.		25.982	67.5	25.903
Station 1.		27.170	77.5	27.063	Station 1.		27.163	76	27.054	Station 1.		27.150	76.5	27.044
2.	2 3	23.820	60.5	23.756	2.	2 18	23.818	60.5	23.754	2.	2 33	23.808	60.5	23.744
3.		24.500	64.5	24.449	3.		24.493	64	24.443	3.		24.483	63	24.435
4.		25.980	69	25.897	4.		25.978	68	25.895	4.		25.982	67.5	25.903
Station 1.		27.168	77.5	27.060	Station 1.		27.163	76.5	27.056	Station 1.		27.150	76.5	27.044
2.	2 4	23.880	60.5	23.756	2.	2 19	23.818	60.5	23.754	2.	2 34	23.808	60.5	23.744
3.		24.496	64.5	24.447	3.		24.490	64	24.440	3.		24.483	63	24.435
4.		25.980	69	25.897	4.		25.978	68.5	25.895	4.		25.982	68	25.901
Station 1.		27.168	77.5	27.060	Station 1.		27.163	77	27.056	Station 1.		27.150	76.5	27.044
2.	2 5	23.820	60.5	23.756	2.	2 20	23.818	60.5	23.754	2.	2 35	23.807	60.5	23.743
3.		24.495	64.5	24.445	3.		24.488	64	24.438	3.		24.483	63	24.435
4.		25.980	69	25.897	4.		25.978	68.5	25.895	4.		25.982	68	25.901
Station 1.		27.168	77.5	27.060	Station 1.		27.163	77	27.056	Station 1.		27.150	76.5	27.044
2.	2 6	23.820	60.5	23.756	2.	2 21	23.818	60.5	23.754	2.	2 36	23.807	60.5	23.743
3.		24.495	64.5	24.445	3.		24.488	64	24.438	3.		24.483	63	24.435
4.		25.978	69	25.895	4.		25.978	68.5	25.895	4.		25.980	68	25.897
Station 1.		27.168	77.5	27.060	Station 1.		27.163	77	27.055	Station 1.		27.150	76.5	27.044
2.	2 7	23.820	60.5	23.756	2.	2 22	23.818	60.5	23.754	2.	2 37	23.807	60.5	23.743
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.483	63	24.435
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.980	68	25.897
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.150	76.5	27.044
2.	2 8	23.820	60.5	23.756	2.	2 23	23.818	60.5	23.754	2.	2 38	23.807	60.5	23.743
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.483	63	24.435
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.980	68	25.897
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.150	76.5	27.044
2.	2 9	23.820	60.5	23.756	2.	2 24	23.818	60.5	23.754	2.	2 39	23.807	60.5	23.743
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.483	63	24.435
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.980	68	25.897
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.150	76.5	27.044
2.	2 10	23.820	60.5	23.756	2.	2 25	23.818	60.5	23.754	2.	2 40	23.807	60.5	23.743
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.483	63	24.435
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.980	68	25.897
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.150	76.5	27.044
2.	2 11	23.820	60.5	23.756	2.	2 26	23.818	60.5	23.754	2.	2 41	23.807	60.5	23.743
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.483	63	24.435
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.980	68	25.897
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.150	76.5	27.044
2.	2 12	23.820	60.5	23.756	2.	2 27	23.818	60.5	23.754	2.	2 42	23.807	60.5	23.743
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.483	63	24.435
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.980	68	25.897
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.150	76.5	27.044
2.	2 13	23.820	60.5	23.756	2.	2 28	23.818	60.5	23.754	2.	2 43	23.807	60.5	23.743
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.483	63	24.435
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.980	68	25.897
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.150	76.5	27.044
2.	2 14	23.820	60.5	23.756	2.	2 29	23.818	60.5	23.754	2.	2 44	23.807	60.5	23.743
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.483	63	24.435
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.980	68	25.897
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.150	76.5	27.044
2.	2 15	23.820	60.5	23.756	2.	2 30	23.818	60.5	23.754	2.	2 45	23.807	60.5	23.743
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.478	63	24.430
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.971	70	25.891
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.149	76	27.045
2.	2 16	23.820	60.5	23.756	2.	2 31	23.818	60.5	23.754	2.	2 46	23.806	60.5	23.742
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.478	63	24.430
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.973	70	25.888
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.149	76	27.043
2.	2 17	23.820	60.5	23.756	2.	2 32	23.818	60.5	23.754	2.	2 47	23.806	60.5	23.742
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.478	63	24.430
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.973	69	25.890
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.148	76.5	27.042
2.	2 18	23.820	60.5	23.756	2.	2 33	23.818	60.5	23.754	2.	2 48	23.804	60.5	23.740
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.480	62.5	24.433
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.973	69	25.890
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.147	76.5	27.041
2.	2 19	23.820	60.5	23.756	2.	2 34	23.818	60.5	23.754	2.	2 49	23.803	60.5	23.739
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.478	63	24.430
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.973	69	25.888
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.148	76.5	27.043
2.	2 20	23.820	60.5	23.756	2.	2 35	23.818	60.5	23.754	2.	2 50	23.803	60.5	23.739
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.478	63	24.431
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.973	69	25.890
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.148	76.5	27.043
2.	2 21	23.820	60.5	23.756	2.	2 36	23.818	60.5	23.754	2.	2 51	23.803	60.5	23.739
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.478	63	24.430
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.973	69	25.890
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.147	76.5	27.041
2.	2 22	23.820	60.5	23.756	2.	2 37	23.818	60.5	23.754	2.	2 52	23.803	60.5	23.739
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.478	63	24.430
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.973	69	25.890
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.147	76.5	27.041
2.	2 23	23.820	60.5	23.756	2.	2 38	23.818	60.5	23.754	2.	2 53	23.803	60.5	23.739
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.478	63	24.430
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.973	69	25.890
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.147	76.5	27.041
2.	2 24	23.820	60.5	23.756	2.	2 39	23.818	60.5	23.754	2.	2 54	23.803	60.5	23.739
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.478	63	24.430
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.973	69	25.890
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.147	76.5	27.041
2.	2 25	23.820	60.5	23.756	2.	2 40	23.818	60.5	23.754	2.	2 55	23.803	60.5	23.739
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.478	63	24.430
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.973	69	25.890
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.147	76.5	27.041
2.	2 26	23.820	60.5	23.756	2.	2 41	23.818	60.5	23.754	2.	2 56	23.803	60.5	23.739
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.478	63	24.430
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.973	69	25.890
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.147	76.5	27.041
2.	2 27	23.820	60.5	23.756	2.	2 42	23.818	60.5	23.754	2.	2 57	23.803	60.5	23.739
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.478	63	24.430
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.973	69	25.890
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.147	76.5	27.041
2.	2 28	23.820	60.5	23.756	2.	2 43	23.818	60.5	23.754	2.	2 58	23.803	60.5	23.739
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.478	63	24.430
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.973	69	25.890
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.147	76.5	27.041
2.	2 29	23.820	60.5	23.756	2.	2 44	23.818	60.5	23.754	2.	2 59	23.803	60.5	23.739
3.		24.493	64	24.443	3.		24.488	64	24.438	3.		24.478	63	24.430
4.		25.978	68	25.895	4.		25.978	68	25.895	4.		25.973	69	25.890
Station 1.		27.168	77	27.060	Station 1.		27.163	77	27.055	Station 1.		27.147	76.5	27.041
2.	2 30	23.820	60.5	23.756	2.	2 45	23.807	60.5	23.743					
3.		24.493	64	24.443	3.		24.478	63	24.430					
4.		25.978	68	25.895	4.		25.971	70	25.891					
Station 1.		27.168	77	27.060	Station 1.		27.149	76	27.045					
2.	2 31	23.820	60.5	23.756	2.	2 46	23.806	60.5	23.742					
3.		24.493	64	24.443	3.		24.478	63	24.430					
4.		25.978	68	25.895	4.		25.973	70	25.888					
Station 1.		27.168	77	27.060	Station 1.		27.149	76	27.043					
2.	2 32	23.820	60.5	23.756	2.	2 47	23.806	60.5	23.742					
3.		24.493	64	24.443	3.		24.478	63	24.430					
4.		25.978	68	25.895	4.		25.973	69	25.890					
Station 1.		27.168	77	27.060	Station 1.		27.148	76.5	27.042					
2.	2 33	23.820	60.5	23.756	2.	2 48	23.804	60.5	23.740					
3.		24.493	64	24.443	3.		24.480	62.5	24.433					
4.		25.978	68	25.895	4.		25.973	69	25.890					
Station 1.		27.168	77	27.060	Station 1.		27.148	76.5	27.041					
2.	2 34	23.820	60.5	23.756	2.	2 49	23.803	60.5	23.739					
3.		24.493	64	24.443	3.		24.478	63	24.430					
4.		25.978	68	25.895	4.		25.973	69	25.890					
Station 1.		27.168	77	27.060	Station 1.		27.148	76.5	27.042					
2.	2 35	23.820	60.5	23.756	2.	2 50	23.803	60.5	23.739					
3.		24.493	64	24.443	3.		24.478	63	24.430					
4.		25.978	68	25.895	4.		25.973	69	25.890					
Station 1.		27.168	77	27.060	Station 1.		27.147	76.5	27.041					
2.	2 36	23.820	60.5	23.756	2.	2 51	23.803	60.5	23.739					
3.		24.493	64	24.443	3.		24.478	63	24.430					
4.		25.978	68	25.895	4.		25.973	69	25.890					
Station 1.		27.168	77	27.060	Station 1.		27.147	76.5	27.041					
2.	2 37	23.820	60.5	23.756	2.	2 52	23.803	60.5	23.739					
3.		24.493	64	24.443	3.		24.478	63	24.430					
4.		25.978	68	25.895	4.		25.973	69	25.890					
Station 1.		27.168	77	27.060	Station 1.		27.147	76.5	27.041					
2.	2 38	23.820	60.5	23.756	2.	2 53	23.803	60.5	23.739					
3.		24.493	64	24.443	3.		24.478	63	24.430					
4.		25.978	68	25.895	4.		25.973	69	25.890					
Station 1.		27.168	77	27.060	Station 1.		27.147	76.5	27.041					
2.	2 39	23.820	60.5	23.756	2.	2 54	23.803	60.5	23.739					
3.		24.493	64	24.443	3.		24.478	63	24.430					
4.		25.978	68	25.895	4.		25.973	69	25.890					
Station 1.		27.168	77	27.060	Station 1.		27.147	76.5	27.041					
2.	2 40	23.820	60.5	23.756	2.	2 55	23.803	60.5	23.739					
3.		24.493	64	24.443	3.		24.478	63	24.430					
4.		25.978	68	25.895	4.		25.973	69	25.890					
Station 1.		27.168	77	27.060	Station 1.		27.147	76.5	27.041					
2.	2 41	23.820	60.5	23.756	2.	2 56	23.803	60.5	23.739					
3.		24.493	64	24.443	3.		24.478	63	24.430					
4.		25.978	68	25.895	4.		25.973	69	25.890					
Station 1.		27.168	77	27.060	Station 1.		27.147	76.5	27.041					
2.	2 42	23.820	60.5	23.756	2.	2 57	23.803	60.5	23.739					
3.		24.493	64	24.443	3.		24.478	63	24.430					
4.		25.978	68	25.895	4.		25.973	69	25.890					
Station 1.		27.168	77	27.060	Station 1.		27.147	76.5	27.041					
2.	2 43	23.820	60.5	23.756	2.	2 58	23.803	60.5	23.739					
3.		24.493	64	24.443	3.		24.478	63	24.430					
4.		25.978	68	25.895	4.		25.973	69	25.890					
Station 1.		27.168	77	27.060	Station 1.		27.147	76.5	27.041					
2.	2 44	23.820	60.5	23.756	2.	2 59	23.803	60.5	23.739					
3.		24.493	64	24.443	3.		24.478	63	24.430					
4.		25.978	68	25.895	4.		25.973	69	25.890					
Station 1.		27.168	77	27.060	Station 1.		27.147	76.5	27.041					
2.	2 45	23.820	60.5	23.756										
3.		24.493	64	24.443										
4.		25.978	68	25.895										
Station 1.		27.168	77	27.060										
2.	2 46	23.820	60.5	23.756										
3.		24.493	64	24.443										
4.		25.978	68	25.895										
Station 1.		27.168	77	27.060										
2.	2 47	23.820	60.5	23.756										
3.		24.493	64	24.443										
4.		25.978	68	25.895										
Station 1.		27.168	77	27.060										
2.	2 48	23.820	60.5	23.756										
3.		24.493	64	24.443										
4.		25.978	68	25.895										
Station 1.		27.168	77	27.060										
2.	2 49	23.820	60.5	23.756										
3.		24.493	64	24.443										
4.		25.978	68	25.895										
Station 1.		27.168	77	27.060										
2.	2 50	23.820	60.5	23.756										
3.		24.493	64	24.443										
4.		25.978	68	25.895										
Station 1.		27.168	77	27.060										
2.	2 51	23.820	60.5	23.756										
3.		24.493	64	24.443										
4.		25.978	68	25.895										
Station 1.		27.168	77	27.060										
2.	2 52	23.820	60.5	23.756										
3.		24.493	64	24.443										
4.		25.978	68	25.895										
Station 1.		27.168	77	27.060										
2.	2 53	23.820	60.5	23.756										
3.		24.493	64	24.443										
4.		25.978	68	25.895										
Station 1.		27.168	77	27.060										
2.	2 54	23.820	60.5	23.756										
3.		24.493	64	24.443										
4.		25.978	68	25.895										
Station 1.		27.168	77	27.060										
2.	2 55	23.820	60.5	23.756										
3.		24.493	64	24.443										
4.		25.978	68	25.895										
Station 1.		27.168	77	27.060										
2.	2 56	23.820	60.5	23.756										
3.		24.493	64	24.443										
4.		25.978	68	25.895										
Station 1.		27.168	77	27.060										
2.	2 57	23.820	60.5	23.756										
3.		24.493	64	24.443										
4.		25.978	68	25.895										
Station 1.		27.168	77	27.060										
2.	2 58	23.820	60.5	23.756										
3.		24.493	64	24.443										
4.		25.978	68	25.895										
Station 1.		27.168	77	27.060										
2.	2 59	23.820	60.5	23.756										
3.		24.493	64	24.443										
4.		25.978	68	25.895										
Station 1.		27.168	77	27.060										

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Meteorological record for June 17, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Station 1	0	23.751	74	23.659
2		24.433	58	24.396
3		25.932	67	25.854
4		27.178	64	27.102
Station 1	1	23.751	74	23.659
2		24.433	58	24.396
3		25.932	67	25.854
4		27.178	64	27.102
Station 1	2	23.751	74	23.659
2		24.435	58.5	24.397
3		25.931	66.5	25.854
4		27.178	64	27.102
Station 1	3	23.750	74.5	23.656
2		24.435	58.5	24.397
3		25.931	66.5	25.854
4		27.177	64	27.101
Station 1	4	23.750	74.5	23.656
2		24.435	58.5	24.397
3		25.931	66.5	25.854
4		27.177	64	27.101
Station 1	5	23.751	75	23.656
2		24.438	58.5	24.400
3		25.933	66.5	25.856
4		27.177	64	27.107
Station 1	6	23.749	75	23.644
2		24.438	58.5	24.400
3		25.933	66.5	25.856
4		27.178	64	27.102
Station 1	7	23.749	76	23.652
2		24.433	58.5	24.397
3		25.936	66.5	25.861
4		27.178	64	27.102
Station 1	8	23.749	76	23.651
2		24.437	58.5	24.400
3		25.937	66	25.861
4		27.177	64	27.101
Station 1	9	23.748	77.5	23.648
2		24.442	60	24.401
3		25.939	66	25.863
4		27.174	64	27.098
Station 1	10	23.748	77.5	23.646
2		24.442	60	24.401
3		25.940	66	25.864
4		27.174	64	27.094
Station 1	11	23.748	78	23.647
2		24.440	60	24.399
3		25.940	66	25.864
4		27.174	64	27.092
Station 1	12	23.748	78	23.647
2		24.438	60	24.397
3		25.939	66	25.863
4		27.173	64	27.099
Station 1	13	23.749	78.5	23.647
2		24.440	60	24.399
3		25.938	66	25.862
4		27.176	64	27.100
Station 1	14	23.749	78.5	23.647
2		24.440	60	24.399
3		25.940	65.5	25.865
4		27.177	64	27.101
Station 1	15	23.749	78.5	23.647
2		24.438	60	24.399
3		25.939	65.5	25.864
4		27.177	64	27.101
Station 1	16	23.749	78.5	23.647
2		24.440	60	24.399
3		25.940	65.5	25.864
4		27.177	64	27.101
Station 1	17	23.749	78.5	23.647
2		24.440	60	24.399
3		25.939	65.5	25.864
4		27.177	64	27.101
Station 1	18	23.749	78.5	23.647
2		24.442	60	24.401
3		25.940	65.5	25.864
4		27.177	64	27.101
Station 1	19	23.749	78.5	23.647
2		24.442	60	24.401
3		25.939	65.5	25.863
4		27.177	64	27.101
Station 1	20	23.749	78.5	23.647
2		24.442	60	24.401
3		25.940	65.5	25.864
4		27.176	64	27.100
Station 1	21	23.749	78.5	23.647
2		24.442	60	24.401
3		25.940	65.5	25.864
4		27.176	64	27.100
Station 1	22	23.749	78.5	23.647
2		24.442	60	24.401
3		25.940	65.5	25.864
4		27.176	64	27.100
Station 1	23	23.749	78.5	23.647
2		24.442	60	24.401
3		25.940	65.5	25.864
4		27.176	64	27.100
Station 1	24	23.749	78.5	23.647
2		24.442	60	24.401
3		25.940	65.5	25.864
4		27.176	64	27.100
Station 1	25	23.749	78.5	23.647
2		24.442	60	24.401
3		25.940	65.5	25.864
4		27.176	64	27.100
Station 1	26	23.749	78.5	23.647
2		24.442	60	24.401
3		25.940	65.5	25.864
4		27.176	64	27.100
Station 1	27	23.749	78.5	23.647
2		24.442	60	24.401
3		25.940	65.5	25.864
4		27.176	64	27.100
Station 1	28	23.749	78.5	23.647
2		24.442	60	24.401
3		25.940	65.5	25.864
4		27.176	64	27.100
Station 1	29	23.749	78.5	23.647
2		24.442	60	24.401
3		25.940	65.5	25.864
4		27.176	64	27.100
Station 1	30	23.749	80	23.645
2		24.442	60.5	24.400
3		25.940	65	25.866
4		27.176	64	27.100
Station 1	31	23.749	80	23.645
2		24.445	61	24.402
3		25.940	65	25.866
4		27.176	64	27.100
Station 1	32	24.440	80	23.644
2		25.940	65	25.866
3		27.176	64	27.100
4		23.750	80	23.646
Station 1	33	24.445	60.5	24.403
2		25.944	65	25.867
3		27.176	64	27.100
4		23.750	80	23.646
Station 1	34	24.440	60.5	24.398
2		25.940	65	25.866
3		27.176	64	27.100
4		23.750	80	23.646
Station 1	35	24.440	60.5	24.398
2		25.940	65	25.866
3		27.176	64	27.100
4		23.750	80	23.646
Station 1	36	24.440	60.5	24.400
2		25.940	64.5	25.868
3		27.177	64	27.101
4		23.749	80.5	23.643
Station 1	37	24.440	59	24.401
2		25.938	64.5	25.866
3		27.177	64	27.101
4		23.749	80.5	23.643
Station 1	38	24.440	59	24.401
2		25.940	64.5	25.866
3		27.177	64	27.101
4		23.751	81.5	23.643
Station 1	39	24.445	60	24.404
2		25.939	64	25.868
3		27.173	64	27.097
4		23.751	82	23.642
Station 1	40	24.445	60	24.404
2		25.939	64	25.868
3		27.173	64	27.097
4		23.753	82	23.644
Station 1	41	24.445	60	24.404
2		25.939	64	25.868
3		27.173	64	27.097
4		23.754	82.5	23.643
Station 1	42	24.448	60	24.407
2		25.945	64	25.874
3		27.173	64	27.097
4		23.754	82.5	23.643
Station 1	43	24.444	60	24.407
2		25.947	64	25.876
3		27.173	64	27.097
4		23.754	82.5	23.643
Station 1	44	24.445	60	24.414
2		25.939	64	25.877
3		27.170	64	27.094
4		23.753	82.5	23.644
Station 1	45	24.447	60	24.406
2		25.938	64	25.877
3		27.170	64	27.094
4		23.758	82.5	23.647
Station 1	46	24.448	60	24.407
2		25.939	64	25.877
3		27.170	64	27.094
4		23.758	82.5	23.647
Station 1	47	24.448	60	24.406
2		25.939	64	25.877
3		27.170	64	27.094
4		23.758	82.5	23.647
Station 1	48	24.448	60.5	24.406
2		25.939	64	25.877
3		27.171	64	27.095
4		23.758	82.5	23.647
Station 1	49	24.448	60.5	24.406
2		25.939	64	25.877
3		27.171	64	27.095
4		23.758	82.5	23.647
Station 1	50	24.448	60.5	24.406
2		25.939	64	25.877
3		27.171	64	27.095
4		23.758	82.5	23.647
Station 1	51	24.448	60.5	24.406
2		25.939	64	25.877
3		27.171	64	27.095
4		23.758	82.5	23.647
Station 1	52	24.448	60.5	24.406
2		25.939	64	25.877
3		27.171	64	27.095
4		23.758	82.5	23.647
Station 1	53	24.448	60.5	24.406
2		25.939	64	25.877
3		27.171	64	27.095

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| Station 1 | | |

Meteorological record for June 18, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					p. m.			
Station 1	2 0	23.800	68	23.720	Station 1	2 15	23.780	67	23.711
2		24.458	63.5	24.409	2		24.460	62.5	24.413
3		25.940	66	25.864	3		25.937	65	25.861
4		27.165	64	27.089	4		27.163	65	27.089
Station 1	2 1	23.800	68	23.720	Station 1	2 16	23.780	67	23.711
2		24.458	63.5	24.409	2		24.460	62.5	24.413
3		25.940	66	25.864	3		25.937	65	25.861
4		27.165	64	27.089	4		27.163	63	27.089
Station 1	2 2	23.800	68	23.720	Station 1	2 17	23.780	67	23.711
2		24.458	63.5	24.410	2		24.463	62.5	24.413
3		25.940	66	25.863	3		25.937	65	25.861
4		27.165	64	27.088	4		27.163	65	27.089
Station 1	2 3	23.800	68	23.720	Station 1	2 18	23.780	67	23.711
2		24.460	63	24.413	2		24.463	63	24.415
3		25.940	66	25.864	3		25.937	65	25.863
4		27.165	64	27.089	4		27.162	65	27.089
Station 1	2 4	23.798	68	23.718	Station 1	2 19	23.780	67	23.710
2		24.463	63.5	24.415	2		24.463	63.5	24.414
3		25.943	65.5	25.866	3		25.937	64.5	25.865
4		27.164	64	27.088	4		27.162	65	27.089
Station 1	2 5	23.797	67.5	23.718	Station 1	2 20	23.780	67	23.710
2		24.463	63	24.415	2		24.463	63.5	24.414
3		25.943	65.5	25.866	3		25.937	64.5	25.865
4		27.164	64	27.087	4		27.162	65	27.089
Station 1	2 6	23.797	67.5	23.718	Station 1	2 21	23.780	67	23.710
2		24.463	63	24.415	2		24.460	63.5	24.411
3		25.940	65	25.866	3		25.937	64.5	25.865
4		27.164	64.5	27.087	4		27.162	65	27.089
Station 1	2 7	23.795	67.5	23.716	Station 1	2 22	23.780	67	23.710
2		24.463	63	24.415	2		24.460	63.5	24.411
3		25.938	65	25.864	3		25.937	64.5	25.865
4		27.164	64.5	27.087	4		27.162	65	27.089
Station 1	2 8	23.795	67	23.717	Station 1	2 23	23.780	67	23.710
2		24.463	63	24.415	2		24.460	63.5	24.411
3		25.938	65	25.864	3		25.937	64.5	25.865
4		27.163	64.5	27.087	4		27.162	65	27.089

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					p. m.			
Station 1	2 30	23.782	67	23.707	Station 1	2 45	23.776	67	23.701
2		24.460	63.5	24.411	2		24.458	63	24.410
3		25.930	64.5	25.859	3		25.930	63	25.861
4		27.160	65	27.082	4		27.161	65	27.083
Station 1	2 31	23.780	67	23.705	Station 1	2 46	23.776	67	23.701
2		24.460	63.5	24.411	2		24.458	63	24.410
3		25.930	64	25.859	3		25.930	63	25.861
4		27.160	65	27.082	4		27.162	64.5	27.085
Station 1	2 32	23.780	67	23.705	Station 1	2 47	23.776	67	23.701
2		24.460	63.5	24.411	2		24.460	63	24.412
3		25.930	64	25.859	3		25.930	63	25.861
4		27.159	65	27.081	4		27.162	64.5	27.085
Station 1	2 33	23.780	67	23.705	Station 1	2 48	23.778	67	23.703
2		24.460	63.5	24.411	2		24.458	63	24.410
3		25.930	64	25.859	3		25.930	65	25.861
4		27.159	65	27.081	4		27.162	64.5	27.085
Station 1	2 34	23.780	67	23.705	Station 1	2 49	23.778	67	23.703
2		24.461	63.5	24.412	2		24.463	63.5	24.413
3		25.930	64	25.859	3		25.930	65	25.861
4		27.159	63	27.081	4		27.163	64.5	27.085
Station 1	2 35	23.780	67	23.705	Station 1	2 50	23.780	67	23.705
2		24.458	64	24.409	2		24.463	63.5	24.413
3		25.930	63.5	25.860	3		25.930	65	25.861
4		27.159	64.5	27.082	4		27.160	65	27.083
Station 1	2 36	23.779	67	23.704	Station 1	2 51	23.781	67	23.706
2		24.458	64	24.409	2		24.463	63.5	24.413
3		25.930	63	25.861	3		25.930	63	25.861
4		27.159	64.5	27.082	4		27.160	63	27.083
Station 1	2 37	23.779	67	23.704	Station 1	2 52	23.780	67	23.705
2		24.458	64	24.407	2		24.463	63.5	24.413
3		25.930	62.5	25.859	3		25.930	65	25.861
4		27.159	64.5	27.083	4		27.160	63	27.083
Station 1	2 38	23.779	67	23.703	Station 1	2 53	23.780	67	23.705
2		24.458	64	24.407	2		24.463	63.5	24.413
3		25.930	63.5	25.859	3		25.930	65	25.861
4		27.159	64	27.083	4		27.160	63	27.083

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Station No. 1.—Summit of Mount Washington. Elevation of barometer above sea-level.. 6,285.4 feet.
Station No. 2.—Above Jacob's Ladder. Elevation of barometer above sea-level ..... 5,533.3 feet.
Station No. 3.—Waumbeck House. Elevation of barometer above sea-level ..... 4,058.7 feet.
Station No. 4.—Base of Mount Washington. Elevation of barometer above sea-level ..... 2,898.3 feet.

NOTE.—Barometer-readings corrected for temperature and instrumental error only.

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Meteorological record for June 19, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
Station 1	p. m.			
2	0	23.800	70	23.716
3		24.446	63	24.396
4		25.900	73.5	25.808
Station 1		27.088	71.5	26.994
2	1	23.800	70	23.716
3		24.450	65.5	24.397
4		25.900	73.5	25.808
Station 1		27.088	71.5	26.994
2	2	23.800	70	23.716
3		24.450	66	24.396
4		25.900	73.5	25.808
Station 1		27.088	71.5	26.994
2	3	23.800	70.5	23.715
3		24.450	66	24.396
4		25.900	73.5	25.808
Station 1		27.085	71.5	26.993
2	4	23.800	70.5	23.715
3		24.450	66	24.396
4		25.900	73.5	25.808
Station 1		27.089	71.5	26.995
2	5	23.800	70.5	23.715
3		24.450	66	24.396
4		25.900	73.5	25.808
Station 1		27.089	71.5	26.995
2	6	23.800	70.5	23.715
3		24.450	66	24.396
4		25.900	73	25.810
Station 1		27.090	71.5	26.996
2	7	23.800	70	23.714
3		24.450	66	24.396
4		25.900	73	25.810
Station 1		27.090	71.5	26.996
2	8	23.800	70	23.714
3		24.450	66	24.396
4		25.900	73	25.810
Station 1		27.090	71.5	26.996
2	9	23.800	70	23.714
3		24.450	66	24.396
4		25.900	73	25.810
Station 1		27.090	71.5	26.996
2	10	23.800	70	23.714
3		24.450	66	24.396
4		25.900	73	25.810
Station 1		27.090	71.5	26.996
2	11	23.800	70	23.714
3		24.450	66	24.396
4		25.900	73	25.810
Station 1		27.090	71.5	26.996
2	12	23.800	70	23.714
3		24.450	66	24.396
4		25.900	73	25.810
Station 1		27.090	71.5	26.996
2	13	23.800	70	23.714
3		24.450	66	24.396
4		25.900	73	25.810
Station 1		27.090	71.5	26.996
2	14	23.800	70	23.714
3		24.450	66	24.396
4		25.900	73	25.810
Station 1		27.090	71.5	26.996
2	15	23.803	71	23.717
3		24.452	63	24.400
4		25.905	71.5	25.819
Station 1		27.098	71.5	27.004
2	16	23.803	71	23.717
3		24.452	65	24.400
4		25.905	71.5	25.819
Station 1		27.098	71.5	27.004
2	17	23.803	71	23.717
3		24.452	64.5	24.401
4		25.905	71.5	25.819
Station 1		27.098	71.5	27.004
2	18	23.803	71	23.717
3		24.452	65	24.400
4		25.905	71	25.819
Station 1		27.100	71.5	27.006
2	19	23.803	71	23.717
3		24.452	65	24.400
4		25.905	71	25.819
Station 1		27.100	71.5	27.006
2	20	23.803	71	23.717
3		24.452	65	24.400
4		25.905	71	25.819
Station 1		27.100	71.5	27.006
2	21	23.803	71	23.717
3		24.452	65	24.400
4		25.905	70.5	25.818
Station 1		27.100	71.5	27.006
2	22	23.803	71	23.719
3		24.452	65	24.400
4		25.905	70.5	25.818
Station 1		27.100	71.5	27.006
2	23	23.810	71	23.724
3		24.455	65.5	24.402
4		25.912	70	25.827
Station 1		27.112	72.5	27.006
2	24	23.810	71.5	23.723
3		24.455	65.5	24.402
4		25.912	70	25.827
Station 1		27.112	72.5	27.006
2	25	23.810	71.5	23.723
3		24.455	65.5	24.403
4		25.912	69	25.829
Station 1		27.112	72.5	27.006
2	26	23.810	71.5	23.723
3		24.455	65.5	24.403
4		25.912	69	25.829
Station 1		27.112	72.5	27.006
2	27	23.810	71.5	23.723
3		24.455	65.5	24.403
4		25.912	68	25.827
Station 1		27.112	72.5	27.006
2	28	23.810	71.5	23.723
3		24.455	65	24.403
4		25.912	68	25.827
Station 1		27.112	72.5	27.006
2	29	23.810	71.5	23.719
3		24.455	64.5	24.404
4		25.912	68	25.827
Station 1		27.112	72.5	27.009
2	30	23.810	71.5	23.718
3		24.455	64.5	24.404
4		25.912	68	25.827
Station 1		27.112	72.5	27.009
2	31	23.810	71.5	23.718
3		24.455	64.5	24.404
4		25.912	68	25.827
Station 1		27.112	72.5	27.009
2	32	23.810	71.5	23.718
3		24.455	64.5	24.404
4		25.912	68	25.827
Station 1		27.112	72.5	27.009
2	33	23.810	71.5	23.718
3		24.455	64.5	24.404
4		25.912	68	25.827
Station 1		27.112	72.5	27.009
2	34	23.810	71.5	23.718
3		24.455	64.5	24.404
4		25.912	68	25.827
Station 1		27.112	72.5	27.009
2	35	23.810	71.5	23.718
3		24.455	64.5	24.404
4		25.912	68	25.827
Station 1		27.112	72.5	27.009
2	36	23.805	71.5	23.718
3		24.455	64.5	24.404
4		25.912	68	25.827
Station 1		27.112	72.5	27.009
2	37	23.805	71.5	23.718
3		24.455	64.5	24.404
4		25.918	68	25.837
Station 1		27.115	72.5	27.009
2	38	23.805	71.5	23.718
3		24.455	64.5	24.404
4		25.918	68	25.837
Station 1		27.115	72.5	27.009
2	39	23.805	71.5	23.718
3		24.455	64.5	24.404
4		25.918	68	25.837
Station 1		27.115	72.5	27.009
2	40	23.805	71.5	23.718
3		24.455	64.5	24.404
4		25.918	68	25.837
Station 1		27.115	72.5	27.009
2	41	23.805	71.5	23.718
3		24.455	64.5	24.404
4		25.918	68	25.837
Station 1		27.115	72.5	27.009
2	42	23.805	71.5	23.718
3		24.455	64.5	24.404
4		25.918	68	25.837
Station 1		27.115	72.5	27.009
2	43	23.805	71.5	23.718
3		24.455	64.5	24.404
4		25.918	68	25.837
Station 1		27.115	72.5	27.009
2	44	23.805	71.5	23.718
3		24.455	64.5	24.404
4		25.918	68	25.837
Station 1		27.115	72.5	27.009
2	45	23.800	72	23.712
3		24.455	65	24.403
4		25.920	66.5	25.843
Station 1		27.120	72	27.014
2	46	23.800	72	23.712
3		24.455	65.5	24.402
4		25.920	66.5	25.843
Station 1		27.120	72	27.014
2	47	23.800	72	23.712
3		24.455	65.5	24.402
4		25.920	66.5	25.843
Station 1		27.120	72	27.014
2	48	23.800	72	23.712
3		24.455	65.5	24.402
4		25.920	66	25.839
Station 1		27.120	72	27.014
2	49	23.800	72	23.712
3		24.456	66	24.402
4		25.915	66	25.839
Station 1		27.120	72	27.014
2	50	23.800	72	23.712
3		24.457	65.5	24.404
4		25.915	66	25.839
Station 1		27.120	72	27.014
2	51	23.800	72	23.712
3		24.455	65.5	24.400
4		25.910	65.5	25.835
Station 1		27.120	72	27.014
2	52	23.800	72	23.712
3		24.455	65	24.403
4		25.910	65.5	25.835
Station 1		27.120	72	27.014
2	53	23.800	72	23.712
3		24.455	65	24.402
4		25.910	65.5	25.839
Station 1		27.120	72	27.014
2	54	23.800	72	23.712
3		24.455	65	24.402
4		25.910	65.5	25.839
Station 1		27.120	72	27.014
2	55	23.800	72	23.712
3		24.455	65	24.402
4		25.910	65.5	25.839
Station 1		27.120	72	27.014
2	56	23.800	72	23.712
3		24.455	65	24.402
4		25.910	65.5	25.839
Station 1		27.120	72	27.014
2	57	23.800	72	23.712
3		24.455	65	24.402
4		25.910	65.5	25.839
Station 1		27.120	72	27.014
2	58	23.800	72	23.712
3		24.455	65	24.402
4		25.910	65.5	25.839
Station 1		27.120	72	27.014
2	59	23.800	72	23.712
3		24.455	65	24.402
4		25.910	65.5	25.839
Station 1		27.120	72	27.014

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| Station | | |

Meteorological record for June 20, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
Station 1	p. m. 2 0	23.578	63	23.509
2		24.240	60	24.200
3		25.730	67	25.656
4		26.938	71	26.846
Station 1	2 1	23.578	63	23.509
2		24.240	60	24.200
3		25.730	66.5	25.656
4		26.846	71	26.846
Station 1	2 2	23.578	63	23.509
2		24.245	60.5	24.204
3		25.730	66.5	25.656
4		26.938	71	26.846
Station 1	2 3	23.585	62.5	23.517
2		24.240	60.5	24.199
3		25.703	66	25.656
4		26.937	71	26.845
Station 1	2 4	23.585	62.5	23.517
2		24.240	60	24.199
3		25.703	66	25.656
4		26.937	71	26.845
Station 1	2 5	23.590	62.5	23.522
2		24.240	60.5	24.199
3		25.738	65.5	25.653
4		26.939	71	26.846
Station 1	2 6	23.580	62.5	23.522
2		24.240	60	24.200
3		25.728	65	25.656
4		26.936	71	26.846
Station 1	2 7	23.580	62.5	23.512
2		24.234	60	24.196
3		25.730	65	25.656
4		26.940	71	26.848
Station 1	2 8	23.580	62.5	23.519
2		24.240	60	24.200
3		25.737	65	25.657
4		26.940	71	26.844
Station 1	2 9	23.580	62.5	23.512
2		24.240	60	24.200
3		25.737	65	25.657
4		26.940	71	26.844
Station 1	2 10	23.580	62.5	23.512
2		24.240	60	24.200
3		25.737	65	25.657
4		26.940	71	26.844
Station 1	2 11	23.580	62.5	23.512
2		24.240	60	24.200
3		25.737	65	25.657
4		26.940	71	26.844
Station 1	2 12	23.580	62.5	23.512
2		24.240	60	24.200
3		25.737	65	25.657
4		26.940	71	26.844
Station 1	2 13	23.580	62.5	23.512
2		24.240	60	24.200
3		25.737	65	25.657
4		26.940	71	26.844
Station 1	2 14	23.580	62.5	23.512
2		24.240	60	24.200
3		25.737	65	25.657
4		26.940	71	26.844
Station 1	2 15	23.580	62	23.513
2		24.235	59	24.198
3		25.727	65	25.655
4		26.938	71.5	26.842
Station 1	2 16	23.575	62	23.508
2		24.238	59	24.201
3		25.727	65	25.653
4		26.938	71.5	26.842
Station 1	2 17	23.575	62	23.508
2		24.240	59	24.203
3		25.728	65	25.656
4		26.937	72	26.842
Station 1	2 18	23.575	62	23.508
2		24.233	59	24.196
3		25.725	65	25.653
4		26.934	72	26.839
Station 1	2 19	23.575	62	23.508
2		24.233	59	24.196
3		25.725	65.5	25.650
4		26.933	72	26.838
Station 1	2 20	23.575	62	23.508
2		24.230	59	24.193
3		25.725	66	25.651
4		26.933	72	26.838
Station 1	2 21	23.575	62	23.508
2		24.235	58.5	24.199
3		25.725	66	25.651
4		26.935	72	26.840
Station 1	2 22	23.573	62.5	23.508
2		24.233	58.5	24.199
3		25.725	66	25.651
4		26.937	72	26.842
Station 1	2 23	23.575	62	23.504
2		24.230	58.5	24.196
3		25.725	66	25.651
4		26.934	72	26.840
Station 1	2 24	23.575	62	23.504
2		24.230	58.5	24.196
3		25.728	65	25.656
4		26.939	72	26.844
Station 1	2 25	23.575	62	23.504
2		24.225	58.5	24.191
3		25.728	67	25.651
4		26.938	72	26.843
Station 1	2 26	23.575	62	23.504
2		24.220	58.5	24.186
3		25.728	65.5	25.653
4		26.939	72	26.844
Station 1	2 27	23.575	62	23.504
2		24.225	58.5	24.189
3		25.728	66	25.654
4		26.938	72	26.843
Station 1	2 28	23.575	62	23.504
2		24.220	58.5	24.186
3		25.728	65	25.653
4		26.939	72	26.844
Station 1	2 29	23.575	62	23.504
2		24.225	58.5	24.191
3		25.728	65	25.656
4		26.939	72	26.844
Station 1	2 30	23.575	62	23.504
2		24.225	58.5	24.191
3		25.728	67	25.651
4		26.938	72	26.843
Station 1	2 31	23.575	62	23.508
2		24.220	58.5	24.196
3		25.728	67	25.651
4		26.938	72	26.843
Station 1	2 32	23.575	62	23.508
2		24.225	58.5	24.196
3		25.728	66.5	25.650
4		26.934	72	26.839
Station 1	2 33	23.575	62	23.504
2		24.223	58.5	24.189
3		25.728	66	25.654
4		26.938	72	26.843
Station 1	2 34	23.575	62	23.504
2		24.220	58.5	24.186
3		25.728	65.5	25.653
4		26.939	72	26.844
Station 1	2 35	23.575	62	23.504
2		24.225	58.5	24.191
3		25.728	65	25.650
4		26.939	72	26.843
Station 1	2 36	23.570	62.5	23.502
2		24.220	58.5	24.196
3		25.728	65	25.656
4		26.939	72	26.844
Station 1	2 37	23.570	62.5	23.502
2		24.220	58.5	24.196
3		25.728	65	25.656
4		26.940	72	26.845
Station 1	2 38	23.570	62.5	23.502
2		24.223	58.5	24.196
3		25.728	65	25.656
4		26.940	72	26.845
Station 1	2 39	23.570	62.5	23.502
2		24.220	58.5	24.196
3		25.728	65	25.656
4		26.940	72	26.845
Station 1	2 40	23.570	62.5	23.502
2		24.220	58.5	24.196
3		25.728	65	25.656
4		26.940	72	26.845
Station 1	2 41	23.570	62.5	23.502
2		24.220	58.5	24.196
3		25.728	65	25.656
4		26.940	72	26.845
Station 1	2 42	23.570	62.5	23.502
2		24.220	58.5	24.196
3		25.728	65	25.656
4		26.940	72	26.845
Station 1	2 43	23.570	62.5	23.502
2		24.220	58.5	24.196
3		25.728	65	25.656
4		26.940	72	26.845
Station 1	2 44	23.570	62.5	23.502
2		24.220	58.5	24.196
3		25.728	65	25.656
4		26.940	72	26.845
Station 1	2 45	23.555	62	23.488
2		24.238	57.5	24.204
3		25.725	64	25.655
4		26.939	72	26.844
Station 1	2 46	23.540	62	23.473
2		24.235	57.5	24.201
3		25.725	64	25.655
4		26.939	72	26.844
Station 1	2 47	23.585	62	23.518
2		24.220	57.5	24.196
3		25.725	64	25.655
4		26.940	72	26.845
Station 1	2 48	23.580	62	23.513
2		24.225	57.5	24.201
3		25.730	64.5	25.659
4		26.940	72	26.845
Station 1	2 49	23.580	62	23.513
2		24.230	57.5	24.196
3		25.730	65	25.658
4		26.940	72	26.845
Station 1	2 50	23.580	62	23.513
2		24.230	57.5	24.196
3		25.730	65	25.657
4		26.941	71.5	26.847
Station 1	2 51	23.580	62	23.513
2		24.235	57.5	24.201
3		25.728	65	25.657
4		26.941	71.5	26.847
Station 1	2 52	23.580	62	23.513
2		24.235	57.5	24.201
3		25.728	65	25.657
4		26.941	71.5	26.847
Station 1	2 53	23.580	62	23.513
2		24.235	57.5	24.201
3		25.728	65	25.657
4		26.941	71.5	26.847

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Meteorological record for June 21, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Station 1	9 0	23.725	67	23.647
2		24.450	67	24.394
3		25.938	60	25.876
4		27.185	60	27.119
Station 1	9 1	23.725	67	23.647
2		24.450	67	24.394
3		25.938	60	25.876
4		27.185	60	27.119
Station 1	9 2	23.725	67.5	23.647
2		24.450	67.5	24.394
3		25.938	59.5	25.877
4		27.185	60	27.119
Station 2	9 3	23.734	67.5	23.655
3		24.459	67.5	24.398
4		25.936	59	25.877
Station 1	9 4	23.734	67.5	23.655
2		24.455	66.5	24.400
3		25.937	58.5	25.878
4		27.188	60	27.122
Station 1	9 5	23.734	67.5	23.655
2		24.455	66.5	24.400
3		25.937	58.5	25.878
4		27.188	60	27.122
Station 2	9 6	23.734	67.5	23.655
3		24.455	66	24.401
4		25.937	58.5	25.878
Station 1	9 7	23.734	67.5	23.655
2		24.455	66.5	24.401
3		25.938	58.7	25.879
4		27.188	60.5	27.121
Station 1	9 8	23.738	67.5	23.653
2		24.455	66.5	24.404
3		25.934	58.5	25.875
4		27.188	60.5	27.121
Station 1	9 9	23.736	67	23.657
2		24.455	67	24.402
3		25.937	57.5	25.880
4		27.190	60.5	27.122
Station 1	9 10	23.736	67.5	23.657
2		24.453	65.5	24.402
3		25.936	57.5	25.880
4		27.190	61	27.122
Station 1	9 11	23.734	67.5	23.655
2		24.455	65.5	24.402
3		25.936	57.5	25.880
4		27.190	61	27.122
Station 1	9 12	23.734	67.5	23.655
2		24.455	66	24.401
3		25.936	57.5	25.880
4		27.190	61	27.122
Station 1	9 13	23.734	67.5	23.655
2		24.455	66.5	24.402
3		25.934	57	25.879
4		27.190	61	27.122
Station 1	9 14	23.738	68	23.658
2		24.455	67	24.399
3		25.934	57	25.879
4		27.190	61	27.122
Station 1	9 15	23.736	67.5	23.657
2		24.455	65.5	24.402
3		25.937	57.5	25.881
4		27.190	60.5	27.123
Station 1	9 16	23.736	67.5	23.657
2		24.453	65.5	24.402
3		25.936	57.5	25.880
4		27.190	61	27.122
Station 1	9 17	23.734	67.5	23.655
2		24.455	65.5	24.402
3		25.936	57.5	25.880
4		27.190	61	27.122
Station 2	9 18	23.734	67.5	23.655
3		24.455	65.5	24.402
4		25.936	57.5	25.880
Station 1	9 19	23.734	67.5	23.655
2		24.455	66	24.401
3		25.936	57.5	25.880
4		27.190	61	27.122
Station 1	9 20	23.734	67.5	23.655
2		24.455	66.5	24.400
3		25.934	57	25.879
4		27.190	61	27.122
Station 1	9 21	23.738	68	23.658
2		24.455	67	24.399
3		25.934	57	25.879
4		27.190	61	27.122
Station 1	9 22	23.738	68	23.658
2		24.455	66.5	24.400
3		25.934	57	25.879
4		27.190	61	27.122
Station 1	9 23	23.737	68	23.658
2		24.455	66	24.401
3		25.935	57	25.880
4		27.190	61	27.123
Station 1	9 24	23.736	67	23.657
2		24.455	66	24.402
3		25.935	56	25.880
4		27.190	60.5	27.123
Station 1	9 25	23.738	67	23.660
2		24.455	66	24.402
3		25.935	56	25.882
4		27.190	60.5	27.124
Station 1	9 26	23.738	67	23.660
2		24.455	66	24.396
3		25.934	56	25.881
4		27.191	60.5	27.124
Station 1	9 27	23.738	67	23.660
2		24.455	66	24.396
3		25.934	56	25.881
4		27.191	60.5	27.124
Station 1	9 28	23.738	67	23.660
2		24.457	66	24.399
3		25.934	56	25.881
4		27.191	60.5	27.124
Station 1	9 29	23.735	67	23.657
2		24.457	66	24.399
3		25.934	55.5	25.882
4		27.191	60.5	27.125
Station 1	9 30	23.736	67	23.658
2		24.455	68	24.396
3		25.935	56.5	25.881
4		27.191	60.5	27.123
Station 1	9 31	23.738	67	23.660
2		24.455	68	24.396
3		25.935	56	25.882
4		27.190	60.5	27.124
Station 1	9 32	23.738	67	23.660
2		24.455	68	24.396
3		25.934	56	25.881
4		27.191	60.5	27.124
Station 2	9 33	23.738	67	23.660
3		24.455	68	24.396
4		25.934	56	25.881
Station 1	9 34	23.738	67	23.660
2		24.457	68	24.399
3		25.934	56	25.881
4		27.191	60.5	27.124
Station 1	9 35	23.735	67	23.657
2		24.457	68	24.399
3		25.934	55.5	25.882
4		27.191	60.5	27.124
Station 1	9 36	23.735	67	23.657
2		24.457	68	24.399
3		25.934	55.5	25.882
4		27.192	60.5	27.125
Station 1	9 37	23.735	67	23.657
2		24.457	68	24.399
3		25.933	55	25.882
4		27.192	60.5	27.125
Station 1	9 38	23.735	67	23.657
2		24.457	68	24.399
3		25.933	55	25.882
4		27.192	60.5	27.125
Station 1	9 39	23.735	67	23.657
2		24.457	68	24.399
3		25.933	55	25.882
4		27.192	60.5	27.125
Station 1	9 40	23.735	67	23.657
2		24.457	68	24.399
3		25.933	55	25.882
4		27.192	60.5	27.125
Station 1	9 41	23.735	67	23.657
2		24.457	68	24.399
3		25.933	55	25.882
4		27.192	60.5	27.125
Station 1	9 42	23.735	67	23.657
2		24.457	68	24.399
3		25.933	55	25.882
4		27.192	60.5	27.125
Station 1	9 43	23.735	67	23.657
2		24.457	68	24.399
3		25.933	55	25.882
4		27.192	60.5	27.125
Station 1	9 44	23.735	67	23.657
2		24.457	68	24.399
3		25.933	55	25.882
4		27.192	60.5	27.125
Station 1	9 45	23.726	65.5	23.654
2		24.450	68	24.401
3		25.930	55	25.879
4		27.191	60	27.124
Station 1	9 46	23.730	66	23.655
2		24.450	68	24.401
3		25.930	54.5	25.881
4		27.190	60	27.124
Station 1	9 47	23.730	68	23.655
2		24.456	68	24.400
3		25.930	54.5	25.881
4		27.190	60	27.124
Station 1	9 48	23.728	68	23.653
2		24.459	68	24.401
3		25.930	54.5	25.881
4		27.190	60	27.124
Station 1	9 49	23.728	66	23.653
2		24.459	54.5	24.401
3		25.930	54.5	25.881
4		27.190	60	27.124
Station 1	9 50	23.728	66	23.653
2		24.459	67.5	24.402
3		25.930	54.5	25.881
4		27.190	60	27.124
Station 1	9 51	23.730	67	23.654
2		24.457	67	24.401
3		25.931	54.5	25.882
4		27.191	58.5	27.126
Station 1	9 52	23.727	66	23.652
2		24.457	67	24.401
3		25.931	54.5	25.882
4		27.191	60	27.126
Station 1	9 53	23.725	67	23.650
2		24.454	66.5	24.402
3		25.931	54.5	25.882
4		27.191	60	27.126

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Meteorological record for June 22, 1873

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
Station 1	p. m. 9 0	24.008	63.5	23.938
2		24.668	60	24.627
3		26.169	59	26.109
4		27.425	60.5	27.358
Station 1	9 1	24.008	64	23.937
2		24.668	60.5	24.626
3		26.169	58.5	26.110
4		27.428	60.5	27.361
Station 1	9 2	24.009	64	23.938
2		24.668	61	24.625
3		26.169	58.5	26.110
4		27.426	60.5	27.361
Station 1	9 3	24.009	64.5	23.938
2		24.668	61.5	24.624
3		26.169	58.5	26.110
4		27.428	60.5	27.361
Station 1	9 4	24.010	64.5	23.939
2		24.670	62	24.625
3		26.168	57	26.113
4		27.429	60.5	27.361
Station 1	9 5	24.010	65	23.937
2		24.670	63	24.625
3		26.168	56	26.115
4		27.430	60.5	27.363
Station 1	9 6	24.010	65	23.937
2		24.671	63	24.626
3		26.168	56	26.115
4		27.430	60.5	27.363
Station 1	9 7	24.011	65	23.934
2		24.671	62.5	24.625
3		26.170	55	26.110
4		27.431	60.5	27.364
Station 1	9 8	24.013	65.5	23.939
2		24.672	64.5	24.626
3		26.170	55	26.110
4		27.431	60.5	27.364
Station 1	9 9	24.013	65.5	23.939
2		24.672	64.5	24.626
3		26.170	55	26.110
4		27.431	60.5	27.364
Station 1	9 10	24.009	65.5	23.939
2		24.669	63.5	24.631
3		26.164	54.5	26.114
4		27.430	60.5	27.363
Station 1	9 11	24.009	64	23.938
2		24.669	64	24.630
3		26.164	55	26.113
4		27.430	60.5	27.363
Station 1	9 12	24.009	64	23.939
2		24.669	64	24.630
3		26.163	55	26.112
4		27.430	60.5	27.363
Station 1	9 13	24.009	64	23.939
2		24.669	64	24.632
3		26.163	55	26.112
4		27.430	60.5	27.363
Station 1	9 14	24.009	64	23.939
2		24.669	64	24.632
3		26.163	55	26.112
4		27.430	60.5	27.363
Station 1	9 15	24.022	68	23.942
2		24.680	63.5	24.631
3		26.165	54.5	26.115
4		27.430	60.5	27.363
Station 1	9 16	24.024	68	23.944
2		24.690	63.5	24.631
3		26.164	54.5	26.114
4		27.430	60.5	27.363
Station 1	9 17	24.024	68	23.944
2		24.690	64	24.630
3		26.164	55	26.113
4		27.430	60.5	27.363
Station 1	9 18	24.024	68	23.944
2		24.690	64	24.630
3		26.163	55	26.112
4		27.430	60.5	27.363
Station 1	9 19	24.024	68	23.944
2		24.692	64	24.632
3		26.165	53	26.114
4		27.430	60.5	27.363
Station 1	9 20	24.024	68	23.944
2		24.692	64	24.632
3		26.165	53	26.114
4		27.430	60.5	27.363
Station 1	9 21	24.024	68	23.944
2		24.692	64	24.632
3		26.163	55	26.112
4		27.430	60.5	27.363
Station 1	9 22	24.024	68	23.944
2		24.692	64	24.632
3		26.163	55	26.112
4		27.430	60.5	27.363
Station 1	9 23	24.024	68	23.944
2		24.692	64	24.632
3		26.163	55	26.112
4		27.430	60.5	27.363
Station 1	9 24	24.024	68	23.944
2		24.692	64	24.632
3		26.163	55	26.112
4		27.430	60.5	27.363
Station 1	9 25	24.024	68	23.944
2		24.692	64	24.632
3		26.163	55	26.112
4		27.430	60.5	27.363
Station 1	9 26	24.024	68	23.944
2		24.692	64	24.632
3		26.163	55	26.112
4		27.430	60.5	27.363
Station 1	9 27	24.024	68	23.944
2		24.692	64	24.632
3		26.163	55	26.112
4		27.430	60.5	27.363
Station 1	9 28	24.024	68	23.944
2		24.692	64	24.632
3		26.163	55	26.112
4		27.430	60.5	27.363
Station 1	9 29	24.024	68	23.944
2		24.692	64	24.632
3		26.163	55	26.112
4		27.430	60.5	27.363
Station 1	9 30	24.024	68	23.944
2		24.692	64	24.632
3		26.163	55	26.112
4		27.430	60.5	27.363
Station 1	9 31	24.024	68	23.944
2		24.692	64	24.632
3		26.163	55	26.112
4		27.430	60.5	27.363
Station 1	9 32	24.024	68	23.944
2		24.692	64	24.632
3		26.163	55	26.112
4		27.430	60.5	27.363
Station 1	9 33	24.024	68	23.944
2		24.692	64	24.631
3		26.164	54	26.116
4		27.430	60.5	27.364
Station 1	9 34	24.024	68	23.944
2		24.693	64	24.631
3		26.165	54	26.117
4		27.431	60	27.365
Station 1	9 35	24.024	68	23.944
2		24.695	65	24.633
3		26.165	54	26.117
4		27.431	60	27.365
Station 1	9 36	24.024	68	23.944
2		24.695	65.5	24.633
3		26.165	54.5	26.115
4		27.430	60	27.364
Station 1	9 37	24.024	68	23.944
2		24.697	65.5	24.634
3		26.164	54.5	26.114
4		27.430	60	27.364
Station 1	9 38	24.024	68	23.944
2		24.697	65.5	24.634
3		26.164	54.5	26.114
4		27.430	60	27.364
Station 1	9 39	24.024	68	23.944
2		24.697	65.5	24.634
3		26.164	54.5	26.114
4		27.430	60	27.364
Station 1	9 40	24.028	67	23.946
2		24.691	67	24.635
3		26.162	54.5	26.112
4		27.431	60	27.365
Station 1	9 41	24.030	68	23.950
2		24.691	67	24.635
3		26.163	54.5	26.113
4		27.431	60	27.365
Station 1	9 42	24.030	68	23.950
2		24.691	67	24.635
3		26.163	54.5	26.114
4		27.431	60	27.365
Station 1	9 43	24.028	67	23.946
2		24.691	67	24.635
3		26.162	54.5	26.112
4		27.430	60.5	27.365
Station 1	9 44	24.029	68	23.949
2		24.690	67	24.634
3		26.162	54.5	26.112
4		27.431	60	27.365
Station 1	9 45	24.029	68	23.949
2		24.690	67	24.634
3		26.162	54.5	26.112
4		27.431	60	27.365
Station 1	9 46	24.030	68	23.950
2		24.691	67	24.635
3		26.162	54.5	26.112
4		27.431	60	27.365
Station 1	9 47	24.030	68	23.950
2		24.691	67	24.635
3		26.163	54.5	26.113
4		27.431	60	27.365
Station 1	9 48	24.030	68	23.950
2		24.691	67	24.635
3		26.163	54	26.115
4		27.430	60.5	27.365
Station 1	9 49	24.028	67	23.946
2		24.691	67	24.635
3		26.162	54	26.114
4		27.430	60.5	27.365
Station 1	9 50	24.029	67	23.946
2		24.692	67	24.636
3		26.162	54.5	26.112
4		27.430	60.5	27.365
Station 1	9 51	24.028	67	23.946
2		24.692	67	24.636
3		26.163	54.5	26.113
4		27.430	60.5	27.365
Station 1	9 52	24.028	67	23.945
2		24.692	67	24.636
3		26.164	54.5	26.114
4		27.430	60.5	27.365
Station 1	9 53	24.028	67	23.945
2		24.692	67	24.636
3		26.164	54.5	26.114
4		27.430	60.5	27.365

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| Station 1 | | |

Meteorological record for June 23, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Station 1	9 0	24.124	69	24.042
2		24.782	65	24.728
3		26.258	67.5	26.177
4		27.490	63.5	27.405
Station 1	9 1	24.124	69	24.042
2		24.782	65	24.728
3		26.258	67	26.178
4		27.490	63.5	27.405
Station 1	9 2	24.124	69	24.042
2		24.782	65	24.728
3		26.258	67	26.178
4		27.490	63.5	27.405
Station 1	9 3	24.124	69	24.042
2		24.782	65	24.728
3		26.258	66	26.180
4		27.490	63.5	27.405
Station 1	9 4	24.124	69	24.042
2		24.782	65	24.728
3		26.258	67	26.180
4		27.490	63.5	27.405
Station 1	9 5	24.124	69	24.042
2		24.782	65	24.728
3		26.258	63.5	26.182
4		27.490	63.5	27.405
Station 1	9 6	24.124	69	24.042
2		24.782	65	24.728
3		26.258	64.5	26.180
4		27.490	63.5	27.405
Station 1	9 7	24.124	69	24.042
2		24.782	65	24.728
3		26.260	64	26.187
4		27.490	63.5	27.405
Station 1	9 8	24.124	69	24.042
2		24.782	65	24.728
3		26.260	64.5	26.185
4		27.491	63.5	27.405
Station 1	9 9	24.124	69	24.042
2		24.782	65	24.728
3		26.260	64.5	26.185
4		27.491	63.5	27.405
Station 1	9 10	24.125	69	24.043
2		24.788	66	24.732
3		26.258	64.5	26.184
4		27.485	63.5	27.410
Station 1	9 11	24.125	69	24.043
2		24.788	66	24.732
3		26.258	64.5	26.184
4		27.486	63.5	27.411
Station 1	9 12	24.125	69	24.043
2		24.788	66	24.732
3		26.259	65	26.184
4		27.489	63.5	27.414
Station 1	9 13	24.125	68.5	24.044
2		24.782	66	24.732
3		26.259	65	26.184
4		27.490	63.5	27.415
Station 1	9 14	24.125	68.5	24.044
2		24.790	65	24.734
3		26.260	63.5	26.185
4		27.490	63.5	27.415
Station 1	9 15	24.125	68.5	24.044
2		24.790	66	24.734
3		26.260	65.5	26.183
4		27.491	63.5	27.416
Station 1	9 16	24.125	68.5	24.044
2		24.790	66	24.734
3		26.260	65.5	26.183
4		27.491	63.5	27.416
Station 1	9 17	24.125	68.5	24.044
2		24.790	66	24.734
3		26.260	65.5	26.183
4		27.491	63.5	27.416
Station 1	9 18	24.125	68.5	24.044
2		24.790	66	24.734
3		26.260	65.5	26.183
4		27.491	63.5	27.416
Station 1	9 19	24.125	68.5	24.044
2		24.790	66	24.734
3		26.260	65.5	26.183
4		27.491	63.5	27.416
Station 1	9 20	24.125	68.5	24.044
2		24.790	66	24.734
3		26.260	65.5	26.183
4		27.491	63.5	27.416
Station 1	9 21	24.125	68.5	24.044
2		24.790	66	24.734
3		26.260	65.5	26.183
4		27.491	63.5	27.416
Station 1	9 22	24.125	69	24.043
2		24.790	66	24.734
3		26.260	65.5	26.183
4		27.491	63.5	27.416
Station 1	9 23	24.125	67.5	24.040
2		24.790	66	24.734
3		26.259	65.5	26.182
4		27.489	63.5	27.417
Station 1	9 24	24.130	69	24.044
2		24.791	66	24.735
3		26.262	66	26.184
4		27.492	64	27.416
Station 1	9 25	24.130	69.5	24.047
2		24.791	66	24.735
3		26.262	66	26.184
4		27.492	64	27.416
Station 1	9 26	24.133	70	24.049
2		24.791	66	24.735
3		26.262	66	26.184
4		27.493	64	27.417
Station 1	9 27	24.133	70	24.049
2		24.791	66	24.735
3		26.260	66	26.182
4		27.495	64	27.419
Station 1	9 28	24.133	70	24.049
2		24.791	66	24.735
3		26.261	64	26.183
4		27.495	64	27.419
Station 1	9 29	24.135	70	24.051
2		24.791	66	24.735
3		26.263	64	26.185
4		27.495	64	27.419
Station 1	9 30	24.135	70	24.051
2		24.791	66	24.735
3		26.264	66	26.186
4		27.495	64	27.419
Station 1	9 31	24.134	70	24.050
2		24.793	66	24.737
3		26.263	66	26.187
4		27.495	64	27.419
Station 1	9 32	24.135	71	24.052
2		24.792	65.5	24.737
3		26.265	66	26.187
4		27.493	63.5	27.418
Station 1	9 33	24.138	71	24.052
2		24.792	65.5	24.738
3		26.265	66	26.189
4		27.493	63.5	27.417
Station 1	9 34	24.138	71	24.052
2		24.792	65.5	24.738
3		26.265	66	26.189
4		27.492	63.5	27.417
Station 1	9 35	24.138	71	24.052
2		24.792	65.5	24.738
3		26.265	66	26.189
4		27.493	63.5	27.418
Station 1	9 36	24.138	71	24.052
2		24.792	65.5	24.738
3		26.265	66	26.189
4		27.493	63.5	27.418
Station 1	9 37	24.138	71	24.052
2		24.792	65.5	24.738
3		26.265	66	26.189
4		27.493	63.5	27.418
Station 1	9 38	24.138	71	24.052
2		24.792	65.5	24.738
3		26.265	66	26.189
4		27.493	63.5	27.418
Station 1	9 39	24.138	71	24.052
2		24.792	65.5	24.738
3		26.265	66	26.189
4		27.493	63.5	27.418

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Meteorological record for June 24, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.	Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.					*p. m.*					*p. m.*					*p. m.*			
Station 1	9 0	24.195	57.5	24.138	Station 1	9 15	24.188	58	24.130	Station 1	9 30	24.195	58.5	24.136	Station 1	9 45	24.192	58	24.134
2		24.850	63	24.801	2		24.855	64.5	24.803	2		24.860	64	24.809	2		24.860	63.5	24.810
3		26.325	68	26.242	3		26.330	66.5	26.251	3		26.330	65.5	26.254	3		26.330	65	26.255
4		27.550	62.5	27.476	4		27.545	63.5	27.469	4		27.555	63.5	27.479	4		27.553	62.5	27.479
Station 2	9 1	24.194	57.5	24.137	Station 2	9 16	24.188	58	24.130	Station 2	9 31	24.195	58.5	24.136	Station 2	9 46	24.192	58	24.134
3		24.852	63.5	24.802	3		24.855	64.5	24.803	3		24.860	64	24.809	3		24.860	63.5	24.810
4		26.325	68	26.242	4		26.330	66.5	26.251	4		26.330	65	26.255	4		26.330	65	26.255
Station 3	9 2	27.550	62.5	27.476	Station 3	9 17	27.545	63.5	27.469	Station 3	9 32	27.555	63.5	27.479	Station 3	9 47	27.553	62.5	27.479
4		24.193	57.5	24.136	4		24.188	58.5	24.130	4		24.195	58.5	24.136	4		24.192	58.5	24.134
Station 4	9 3	24.852	63.5	24.801	Station 4	9 18	24.857	64.5	24.805	Station 4	9 33	24.860	64	24.809	Station 4	9 48	24.860	63.5	24.810
2		24.852	63.5	24.801	2		24.857	64.5	24.805	2		24.860	64	24.809	2		24.860	63.5	24.810
3		26.325	68	26.242	3		26.329	66	26.251	3		26.330	65	26.255	3		26.330	65	26.255
4		27.550	62.5	27.476	4		27.548	63.5	27.472	4		27.558	63.5	27.482	4		27.553	62.5	27.480
Station 1	9 4	24.193	57.5	24.136	Station 1	9 19	24.857	64.5	24.805	Station 1	9 34	24.861	64	24.810	Station 1	9 49	24.860	63.5	24.810
2		24.853	64	24.801	2		24.857	64.5	24.805	2		24.860	64	24.809	2		24.860	63.5	24.810
3		26.325	68	26.242	3		26.329	66	26.251	3		26.330	65	26.255	3		26.330	65	26.255
4		27.550	62.5	27.476	4		27.548	63.5	27.472	4		27.558	63.5	27.482	4		27.553	62.5	27.480
Station 2	9 5	24.193	57.5	24.136	Station 2	9 20	24.857	64.5	24.805	Station 2	9 35	24.861	64.5	24.810	Station 2	9 50	24.861	63.5	24.810
3		24.853	64	24.801	3		24.857	64.5	24.805	3		24.861	64.5	24.810	3		24.861	63.5	24.811
4		26.325	67.5	26.244	4		26.329	66	26.250	4		26.330	64.5	26.256	4		26.330	65	26.255
Station 3	9 6	27.550	62.5	27.476	Station 3	9 21	27.548	63.5	27.472	Station 3	9 36	27.558	63.5	27.483	Station 3	9 51	27.553	62.5	27.480
4		24.190	57.5	24.133	4		24.189	58.5	24.130	4		24.195	58.5	24.136	4		24.190	58.5	24.133
Station 4	9 7	24.852	64	24.801	Station 4	9 22	24.857	64.5	24.805	Station 4	9 37	24.861	64	24.810	Station 4	9 52	24.861	63.5	24.811
2		24.852	64	24.801	2		24.857	64.5	24.805	2		24.861	64.5	24.810	2		24.861	63.5	24.811
3		26.326	67	26.243	3		26.328	66	26.250	3		26.330	64.5	26.256	3		26.330	65	26.255
4		27.549	62.5	27.475	4		27.548	63.5	27.472	4		27.556	63	27.481	4		27.553	62.5	27.480
Station 1	9 8	24.189	58	24.130	Station 1	9 23	24.190	58.5	24.130	Station 1	9 38	24.194	58	24.130	Station 1	9 53	24.190	57.5	24.130
2		24.851	64	24.800	2		24.857	64.5	24.805	2		24.861	63.5	24.811	2		24.861	63.5	24.811
3		26.324	68	26.244	3		26.327	66	26.249	3		26.330	65	26.255	3		26.330	65	26.255
4		27.549	62.5	27.475	4		27.547	63.5	27.471	4		27.556	63.5	27.481	4		27.553	62.5	27.480

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Meteorological record for June 25, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Station 1	9 0	24.320	63	24.251
2		24.975	58	24.937
3		26.465	72.5	26.372
4		27.675	67	27.590
Station 1	9 1	24.320	63	24.251
2		24.975	58.5	24.937
3		26.465	72.5	26.372
4		27.675	67	27.590
Station 1	9 2	24.320	63	24.251
2		24.975	58	24.937
3		26.465	71.5	26.374
4		27.675	67	27.590
Station 1	9 3	24.320	63.5	24.250
2		24.975	58	24.937
3		26.463	71.5	26.374
4		27.675	67	27.590
Station 1	9 4	24.322	58.5	24.253
2		24.975	58	24.937
3		26.467	71	26.377
4		27.673	67	27.588
Station 1	9 5	24.322	64	24.251
2		24.974	58.5	24.935
3		26.467	70.5	26.379
4		27.673	67	27.588
Station 1	9 6	24.322	64	24.251
2		24.975	58.5	24.936
3		26.467	70	26.380
4		27.673	67	27.590
Station 1	9 7	24.322	64	24.251
2		24.974	58.5	24.935
3		26.465	70	26.378
4		27.673	67	27.590
Station 1	9 8	24.322	64.5	24.251
2		24.974	58.5	24.935
3		26.465	70	26.378
4		27.673	67	27.590
Station 1	9 9	24.322	64	24.251
2		24.974	58.5	24.935
3		26.465	70	26.378
4		27.673	67	27.590
Station 1	9 10	24.322	64	24.251
2		24.975	58.5	24.937
3		26.465	70	26.378
4		27.673	67	27.590
Station 1	9 11	24.322	64	24.251
2		24.975	58.5	24.937
3		26.465	70	26.378
4		27.673	67	27.590
Station 1	9 12	24.322	64	24.251
2		24.976	58.5	24.938
3		26.465	70	26.378
4		27.673	67	27.590
Station 1	9 13	24.322	64	24.251
2		24.975	58.5	24.937
3		26.464	69	26.370
4		27.675	67	27.590
Station 1	9 14	24.322	64	24.251
2		24.975	58.5	24.937
3		26.464	69	26.370
4		27.675	67	27.590
Station 1	9 15	24.322	65	24.251
2		24.975	58.5	24.937
3		26.464	69	26.370
4		27.675	67	27.590
Station 1	9 16	24.322	65	24.251
2		24.975	58.5	24.937
3		26.464	69	26.372
4		27.675	67	27.590
Station 1	9 17	24.322	65	24.251
2		24.976	60	24.938
3		26.464	69	26.370
4		27.675	67.5	27.590
Station 1	9 18	24.322	65	24.251
2		24.976	60	24.938
3		26.460	68.5	26.376
4		27.675	67.5	27.589
Station 1	9 19	24.322	65	24.251
2		24.975	60	24.937
3		26.461	68.5	26.377
4		27.676	67.5	27.590
Station 1	9 20	24.322	65	24.251
2		24.975	60	24.937
3		26.461	68.5	26.377
4		27.676	67.5	27.590
Station 1	9 21	24.323	65	24.252
2		24.976	60	24.938
3		26.460	68.5	26.376
4		27.676	67.5	27.590
Station 1	9 22	24.322	65	24.251
2		24.977	60	24.945
3		26.460	68.5	26.377
4		27.676	67.5	27.590
Station 1	9 23	24.322	64.5	24.251
2		24.977	60.5	24.944
3		26.460	68.5	26.377
4		27.676	67.5	27.590
Station 1	9 24	24.322	65	24.251
2		24.977	60	24.945
3		26.460	68.5	26.377
4		27.676	67.5	27.590
Station 1	9 25	24.322	65	24.251
2		24.977	60	24.945
3		26.460	68.5	26.377
4		27.676	67.5	27.590
Station 1	9 26	24.322	65	24.251
2		24.977	60	24.945
3		26.460	68.5	26.377
4		27.676	67.5	27.590
Station 1	9 27	24.322	65	24.251
2		24.977	60	24.945
3		26.460	68.5	26.377
4		27.676	67.5	27.590
Station 1	9 28	24.322	65	24.251
2		24.977	60	24.945
3		26.460	68.5	26.377
4		27.676	67.5	27.590
Station 1	9 29	24.322	65	24.251
2		24.977	60	24.945
3		26.460	68.5	26.377
4		27.676	67.5	27.590
Station 1	9 30	24.320	65	24.247
2		24.971	61	24.926
3		26.458	68	26.375
4		27.678	68	27.591
Station 1	9 31	24.320	65	24.247
2		24.972	61	24.927
3		26.458	68	26.375
4		27.678	68	27.591
Station 1	9 32	24.320	65	24.247
2		24.971	61	24.926
3		26.457	67.5	26.376
4		27.678	68	27.591
Station 1	9 33	24.320	65	24.247
2		24.971	61	24.926
3		26.458	67.5	26.374
4		27.676	68	27.589
Station 1	9 34	24.320	65	24.247
2		24.971	61	24.926
3		26.458	67.5	26.374
4		27.676	68	27.589
Station 1	9 35	24.320	65	24.247
2		24.971	61	24.926
3		26.453	67.5	26.372
4		27.675	68	27.588
Station 1	9 36	24.319	65	24.246
2		24.972	60.5	24.926
3		26.453	67.5	26.373
4		27.675	68	27.588
Station 1	9 37	24.319	65	24.246
2		24.971	60.5	24.927
3		26.453	67.5	26.373
4		27.673	68	27.586
Station 1	9 38	24.319	65	24.246
2		24.971	60.5	24.927
3		26.453	67.5	26.374
4		27.673	68	27.586
Station 1	9 39	24.318	65	24.245
2		24.972	61	24.926
3		26.448	67	26.368
4		27.670	67	27.585
Station 1	9 40	24.318	65	24.245
2		24.971	61	24.926
3		26.448	67	26.368
4		27.670	67	27.585
Station 1	9 41	24.318	65	24.245
2		24.971	61	24.926
3		26.448	67	26.368
4		27.670	67	27.585
Station 1	9 42	24.318	65	24.245
2		24.972	61	24.926
3		26.449	67	26.369
4		27.670	67	27.585
Station 1	9 43	24.318	65	24.245
2		24.972	61	24.927
3		26.450	67	26.370
4		27.670	67	27.585
Station 1	9 44	24.318	65	24.245
2		24.971	61	24.926
3		26.448	67	26.368
4		27.670	67	27.585
Station 1	9 45	24.318	65	24.245
2		24.972	61	24.926
3		26.448	67	26.368
4		27.670	67	27.585
Station 1	9 46	24.318	65	24.245
2		24.971	61	24.926
3		26.448	67	26.368
4		27.670	67	27.585
Station 1	9 47	24.318	65	24.245
2		24.971	61	24.926
3		26.448	67	26.368
4		27.670	67	27.585
Station 1	9 48	24.318	65	24.245
2		24.972	61	24.927
3		26.449	67	26.369
4		27.670	67	27.585
Station 1	9 49	24.318	65	24.245
2		24.972	61	24.927
3		26.450	67	26.370
4		27.670	67	27.585
Station 1	9 50	24.318	65	24.245
2		24.972	61	24.927
3		26.450	67	26.370
4		27.670	67	27.585
Station 1	9 51	24.318	65	24.245
2		24.971	61	24.926
3		26.450	67	26.370
4		27.671	67	27.586
Station 1	9 52	24.318	65	24.245
2		24.972	61	24.927
3		26.450	67	26.370
4		27.671	67.5	27.587
Station 1	9 53	24.314	65	24.241
2		24.971	61	24.926
3		26.449	67	26.369
4		27.670	66.5	27.584

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| Station 1. | | |

Meteorological record for June 25, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Station 1	9 0	24.320	63	24.251
2		24.975	58	24.937
3		26.465	72.5	26.372
4		27.675	67	27.590
Station 1	9 1	24.320	63	24.251
2		24.975	58	24.937
3		26.465	72.5	26.372
4		27.675	67	27.590
Station 1	9 2	24.320	58	24.251
2		24.975	58	24.937
3		26.465	71.5	26.372
4		27.675	67	27.590
Station 1	9 3	24.320	63.5	24.250
2		24.975	58	24.937
3		26.465	71.5	26.374
4		27.675	67	27.590
Station 1	9 4	24.322	64	24.251
2		24.975	58.5	24.938
3		26.467	71	26.376
4		27.673	67	27.588
Station 1	9 5	24.322	64	24.251
2		24.974	58.5	24.936
3		26.467	70	26.379
4		27.673	67	27.588
Station 1	9 6	24.322	64	24.251
2		24.975	58.5	24.936
3		26.467	70	26.380
4		27.673	67	27.590
Station 1	9 7	24.322	64	24.251
2		24.974	58.5	24.935
3		26.465	70	26.378
4		27.675	67	27.590
Station 1	9 8	24.322	64	24.251
2		24.975	58.5	24.937
3		26.465	70	26.378
4		27.675	67	27.590
Station 1	9 9	24.322	64	24.251
2		24.975	58.5	24.937
3		26.465	70	26.378
4		27.675	67	27.590
Station 1	9 10	24.322	64	24.251
2		24.975	58.5	24.937
3		26.465	70	26.378
4		27.675	67	27.590
Station 1	9 11	24.322	64	24.251
2		24.975	58.5	24.937
3		26.465	70	26.378
4		27.675	67	27.590
Station 1	9 12	24.322	64	24.251
2		24.975	58.5	24.937
3		26.465	70	26.378
4		27.675	67	27.590
Station 1	9 13	24.322	64	24.251
2		24.975	58.5	24.937
3		26.465	70	26.378
4		27.675	67	27.590
Station 1	9 14	24.322	64	24.251
2		24.975	58.5	24.937
3		26.465	70	26.378
4		27.675	67	27.590
Station 1	9 15	24.322	64	24.251
2		24.975	58.5	24.937
3		26.464	70	26.377
4		27.675	67	27.590
Station 1	9 16	24.322	64	24.251
2		24.975	58.5	24.937
3		26.464	69	26.376
4		27.675	67	27.590
Station 1	9 17	24.322	65	24.251
2		24.976	60	24.940
3		26.464	69	26.376
4		27.675	67.5	27.589
Station 1	9 18	24.322	65	24.249
2		24.976	60	24.934
3		26.460	68.5	26.376
4		27.675	67.5	27.589
Station 1	9 19	24.322	65	24.249
2		24.975	60	24.931
3		26.461	68.5	26.377
4		27.676	67.5	27.590
Station 1	9 20	24.322	65	24.249
2		24.975	60	24.934
3		26.461	68.5	26.377
4		27.676	67.5	27.590
Station 1	9 21	24.323	65	24.249
2		24.976	60	24.934
3		26.460	68.5	26.376
4		27.676	67.5	27.590
Station 1	9 22	24.322	65	24.249
2		24.977	60	24.935
3		26.460	68	26.377
4		27.676	67.5	27.590
Station 1	9 23	24.322	65	24.249
2		24.977	60	24.935
3		26.460	68	26.377
4		27.676	67.5	27.590
Station 1	9 24	24.322	65	24.249
2		24.977	60	24.935
3		26.460	68	26.377
4		27.676	67.5	27.590
Station 1	9 25	24.322	65	24.249
2		24.977	60	24.935
3		26.460	68	26.377
4		27.676	67.5	27.590
Station 1	9 26	24.322	65	24.249
2		24.977	60	24.935
3		26.460	68	26.377
4		27.676	67.5	27.590
Station 1	9 27	24.322	65	24.249
2		24.977	60	24.935
3		26.460	68	26.377
4		27.676	67.5	27.590
Station 1	9 28	24.322	65	24.249
2		24.977	60	24.935
3		26.460	68	26.377
4		27.676	67.5	27.590
Station 1	9 29	24.322	65	24.249
2		24.977	60	24.935
3		26.460	68	26.377
4		27.676	67.5	27.590
Station 1	9 30	24.320	65	24.247
2		24.975	61	24.926
3		26.458	68	26.375
4		27.678	67.5	27.591
Station 1	9 31	24.320	65	24.247
2		24.972	61	24.927
3		26.458	68	26.375
4		27.678	67.5	27.591
Station 1	9 32	24.320	65	24.246
2		24.971	61	24.926
3		26.457	67.5	26.376
4		27.678	67	27.591
Station 1	9 33	24.320	65	24.247
2		24.971	61	24.926
3		26.458	67.5	26.374
4		27.676	68	27.589
Station 1	9 34	24.320	65	24.247
2		24.971	61	24.926
3		26.458	67.5	26.374
4		27.676	68	27.589
Station 1	9 35	24.320	65	24.246
2		24.971	61	24.926
3		26.453	67.5	26.372
4		27.675	68	27.588
Station 1	9 36	24.319	65	24.246
2		24.972	60.5	24.926
3		26.453	67.5	26.372
4		27.675	68	27.588
Station 1	9 37	24.319	65	24.246
2		24.971	60.5	24.927
3		26.453	67.5	26.373
4		27.675	68	27.589
Station 1	9 38	24.319	65	24.246
2		24.971	60.5	24.927
3		26.453	67.5	26.373
4		27.675	68	27.589
Station 1	9 39	24.319	65	24.246
2		24.971	60.5	24.927
3		26.453	67.5	26.373
4		27.675	68	27.589
Station 1	9 40	24.319	65	24.246
2		24.971	60.5	24.927
3		26.453	67.5	26.373
4		27.675	68	27.589
Station 1	9 41	24.319	65	24.246
2		24.971	60.5	24.927
3		26.453	67.5	26.373
4		27.675	68	27.589
Station 1	9 42	24.319	65	24.246
2		24.971	60.5	24.927
3		26.453	67.5	26.373
4		27.675	68	27.589
Station 1	9 43	24.319	65	24.246
2		24.971	60.5	24.927
3		26.453	67.5	26.373
4		27.675	68	27.589
Station 1	9 44	24.319	65	24.246
2		24.971	60.5	24.927
3		26.453	67.5	26.373
4		27.675	68	27.589
Station 1	9 45	24.318	65	24.245
2		24.972	61	24.926
3		26.448	67	26.368
4		27.670	67	27.585
Station 1	9 46	24.318	65	24.245
2		24.971	61	24.926
3		26.448	67	26.368
4		27.670	67	27.585
Station 1	9 47	24.318	65	24.245
2		24.971	61	24.926
3		26.448	67	26.368
4		27.670	67	27.585
Station 1	9 48	24.318	65	24.245
2		24.972	61	24.927
3		26.449	67	26.369
4		27.670	67	27.585
Station 1	9 49	24.318	65	24.245
2		24.972	61	24.927
3		26.450	67	26.370
4		27.670	67	27.585
Station 1	9 50	24.318	65	24.245
2		24.972	61	24.927
3		26.450	67	26.370
4		27.670	67	27.585
Station 1	9 51	24.319	65	24.245
2		24.971	61	24.926
3		26.450	67	26.370
4		27.671	67	27.586
Station 1	9 52	24.318	65	24.245
2		24.972	61	24.927
3		26.450	67	26.370
4		27.671	66.5	27.585
Station 1	9 53	24.318	65	24.245
2		24.972	61	24.927
3		26.450	67	26.370
4		27.671	66.5	27.585

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| Station | | |

Meteorological record for June 26, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Station 1	9 0	24.134	60	24.071
2		24.815	60	24.773
3		26.315	72.5	26.222
4		27.520	69	27.430
Station 1	9 1	24.134	60	24.071
2		24.815	60	24.773
3		26.313	72.5	26.220
4		27.520	69	27.430
Station 1	9 2	24.134	60	24.071
2		24.815	60	24.773
3		26.311	72	26.219
4		27.520	69	27.430
Station 1	9 3	24.134	60	24.071
2		24.815	60	24.773
3		26.311	72	26.219
4		27.518	69	27.428
Station 1	9 4	24.133	60	24.070
2		24.815	60	24.773
3		26.311	71.5	26.220
4		27.518	69	27.428
Station 1	9 5	24.133	60	24.070
2		24.818	60	24.776
3		26.311	71.5	26.220
4		27.518	69	27.428
Station 1	9 6	24.130	59.5	24.068
2		24.818	60	24.776
3		26.311	71.5	26.220
4		27.518	69	27.428
Station 1	9 7	24.130	59.5	24.068
2		24.818	60	24.776
3		26.310	70.5	26.220
4		27.516	69	27.426
Station 1	9 8	24.130	59.5	24.068
2		24.815	60	24.773
3		26.310	70.5	26.220
4		27.515	69	27.425
Station 1	9 9	24.129	59	24.069
2		24.815	60	24.773
3		26.306	69	26.221
4		27.510	69	27.420
Station 1	9 10	24.129	59	24.069
2		24.814	60	24.772
3		26.305	69.5	26.219
4		27.510	69	27.420
Station 1	9 11	24.128	59	24.068
2		24.816	60	24.774
3		26.305	69.5	26.219
4		27.510	69	27.420
Station 1	9 12	24.128	59	24.066
2		24.815	59.5	24.774
3		26.305	69.5	26.219
4		27.510	69	27.420
Station 1	9 13	24.126	59	24.066
2		24.815	59.5	24.777
3		26.305	69.5	26.219
4		27.510	69	27.420
Station 1	9 14	24.126	59	24.066
2		24.818	59.5	24.777
3		26.305	69.5	26.219
4		27.510	69	27.420
Station 1	9 15	24.126	59	24.066
2		24.818	59.5	24.777
3		26.305	69.5	26.219
4		27.510	69	27.420
Station 1	9 16	24.126	59	24.066
2		24.816	59.5	24.774
3		26.305	69.5	26.219
4		27.510	69	27.420
Station 1	9 17	24.126	59	24.066
2		24.816	59.5	24.774
3		26.305	69.5	26.219
4		27.510	69	27.420
Station 1	9 18	24.126	59	24.066
2		24.815	59.5	24.774
3		26.305	69.5	26.219
4		27.510	69	27.420
Station 1	9 19	24.126	59	24.066
2		24.818	59.5	24.777
3		26.305	69.5	26.219
4		27.510	69	27.420
Station 1	9 20	24.126	59.5	24.066
2		24.818	59.5	24.777
3		26.305	69.5	26.219
4		27.510	69	27.421
Station 1	9 21	24.126	59.5	24.066
2		24.816	59.5	24.775
3		26.305	69.5	26.219
4		27.510	69.5	27.421
Station 1	9 22	24.126	59	24.066
2		24.815	59.5	24.774
3		26.306	69.5	26.220
4		27.510	69.5	27.421
Station 1	9 23	24.126	59.5	24.066
2		24.817	59.5	24.775
3		26.306	69.5	26.220
4		27.510	69.5	27.421
Station 1	9 24	24.125	58.5	24.066
2		24.812	59.5	24.771
3		26.302	68.5	26.218
4		27.506	68.5	27.417
Station 1	9 25	24.125	58.5	24.066
2		24.810	59.5	24.769
3		26.301	68.5	26.217
4		27.505	68.5	27.416
Station 1	9 26	24.125	58.5	24.066
2		24.810	59.5	24.769
3		26.300	68.5	26.216
4		27.503	68.5	27.415
Station 1	9 27	24.125	58.5	24.066
2		24.809	59.5	24.769
3		26.300	68.5	26.216
4		27.505	69	27.415
Station 1	9 28	24.125	58.5	24.066
2		24.808	59.5	24.768
3		26.300	68.5	26.216
4		27.503	69	27.413
Station 1	9 29	24.125	58.5	24.066
2		24.808	59.5	24.768
3		26.300	68.5	26.216
4		27.503	69	27.413
Station 1	9 30	24.125	58.5	24.066
2		24.809	59.5	24.768
3		26.300	68.5	26.215
4		27.503	69	27.413
Station 1	9 31	24.125	58.5	24.066
2		24.810	59.5	24.769
3		26.300	68.5	26.215
4		27.503	69	27.412
Station 1	9 32	24.124	58	24.066
2		24.810	59.5	24.769
3		26.300	69	26.215
4		27.503	69	27.412
Station 1	9 33	24.124	58	24.066
2		24.810	59.5	24.769
3		26.300	69	26.215
4		27.503	69	27.412
Station 1	9 34	24.124	58	24.066
2		24.810	59.5	24.769
3		26.300	69	26.215
4		27.503	69	27.412
Station 1	9 35	24.124	58	24.066
2		24.810	59.5	24.769
3		26.300	69	26.215
4		27.503	69	27.412
Station 1	9 36	24.124	58	24.066
2		24.810	59.5	24.769
3		26.300	69	26.215
4		27.503	69	27.412
Station 1	9 37	24.124	58	24.066
2		24.810	59.5	24.769
3		26.300	69	26.215
4		27.503	69	27.412
Station 1	9 38	24.124	58	24.066
2		24.810	59.5	24.769
3		26.300	69	26.215
4		27.503	69	27.412
Station 1	9 39	24.124	58	24.066
2		24.809	59	24.769
3		26.300	68	26.217
4		27.503	69.5	27.412
Station 1	9 45	24.124	58	24.066
2		24.809	59	24.769
3		26.300	68	26.217
4		27.503	69.5	27.412
Station 1	9 46	24.124	59	24.066
2		24.808	59	24.768
3		26.298	67	26.218
4		27.505	69.5	27.414
Station 1	9 47	24.124	59	24.066
2		24.808	59	24.768
3		26.298	67	26.218
4		27.505	69.5	27.414
Station 1	9 48	24.124	59	24.066
2		24.810	59	24.770
3		26.298	67.5	26.217
4		27.505	69.5	27.414
Station 1	9 49	24.124	59	24.066
2		24.809	59	24.769
3		26.298	67.5	26.217
4		27.505	69.5	27.414
Station 1	9 50	24.124	59	24.066
2		24.810	59	24.770
3		26.298	67.5	26.217
4		27.505	69.5	27.414
Station 1	9 51	24.123	59	24.065
2		24.810	59	24.770
3		26.298	67.5	26.217
4		27.505	69.5	27.414
Station 1	9 52	24.123	59	24.065
2		24.812	59	24.772
3		26.295	67.5	26.214
4		27.505	69.5	27.414
Station 1	9 53	24.123	59	24.065
2		24.813	59.5	24.773
3		26.295	67.5	26.214
4		27.505	69.5	27.414

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Meteorological record for June 27, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
Station 1	p. m. 9 0	23.868	60	23.905
2		24.543	59	24.504
3		26.030	73	25.938
4		27.215	71.5	27.121
Station 1	9 1	23.868	60	23.905
2		24.543	59	24.504
3		26.030	73	25.938
4		27.215	71.5	27.121
Station 1	9 2	23.865	60	23.902
2		24.543	59.5	24.503
3		26.030	73	25.940
4		27.215	71.5	27.121
Station 1	9 3	23.864	59.5	23.902
2		24.543	59.5	24.503
3		26.030	73	25.940
4		27.215	71.5	27.121
Station 1	9 4	23.865	60	23.902
2		24.543	60	24.502
3		26.030	72.5	25.939
4		27.215	71.5	27.121
Station 1	9 5	23.865	60	23.902
2		24.545	60	24.504
3		26.030	72.5	25.939
4		27.215	71.5	27.121
Station 1	9 6	23.865	60	23.902
2		24.543	60	24.501
3		26.030	71	25.940
4		27.215	71.5	27.121
Station 1	9 7	23.865	60	23.902
2		24.543	60	24.501
3		26.030	71	25.940
4		27.215	71.5	27.121
Station 1	9 8	23.861	60.5	23.898
2		24.545	60.5	24.503
3		26.030	71	25.940
4		27.215	71.5	27.121
Station 1	9 9	23.864	60	23.901
2		24.543	60	24.501
3		26.028	67	25.945
4		27.210	71.5	27.116
Station 1	9 10	23.864	60	23.901
2		24.545	61	24.502
3		26.028	67	25.945
4		27.210	71.5	27.116
Station 1	9 11	23.864	60	23.901
2		24.545	61	24.503
3		26.028	67	25.945
4		27.210	71.5	27.116
Station 1	9 12	23.864	60	23.901
2		24.545	61	24.503
3		26.028	67	25.945
4		27.210	71.5	27.116
Station 1	9 13	23.864	60	23.901
2		24.545	61	24.503
3		26.028	67	25.945
4		27.210	71.5	27.116
Station 1	9 14	23.864	60	23.901
2		24.545	61	24.503
3		26.028	67	25.945
4		27.210	71.5	27.116
Station 1	9 15	23.864	60	23.901
2		24.543	61	24.502
3		26.028	67	25.945
4		27.210	71.5	27.116
Station 1	9 16	23.864	60	23.901
2		24.545	61	24.502
3		26.028	67	25.945
4		27.210	71.5	27.116
Station 1	9 17	23.864	60	23.901
2		24.545	61	24.503
3		26.028	67	25.945
4		27.210	71.5	27.116
Station 1	9 18	23.864	60	23.901
2		24.545	61	24.502
3		26.025	68.5	25.943
4		27.210	71.5	27.116
Station 1	9 19	23.864	60	23.901
2		24.546	61	24.503
3		26.025	68.5	25.943
4		27.210	71.5	27.116
Station 1	9 20	23.864	60	23.901
2		24.547	61	24.504
3		26.025	68.5	25.943
4		27.210	71.5	27.116
Station 1	9 21	23.864	60	23.901
2		24.545	61	24.502
3		26.023	68.5	25.940
4		27.210	71.5	27.116
Station 1	9 22	23.864	60	23.901
2		24.548	61	24.505
3		26.028	68.5	25.940
4		27.210	71.5	27.116
Station 1	9 23	23.864	60	23.901
2		24.544	61	24.500
3		26.028	68.5	25.940
4		27.210	71.5	27.116
Station 1	9 24	23.864	60	23.901
2		24.543	61	24.500
3		26.028	68.5	25.940
4		27.210	71.5	27.116
Station 1	9 25	23.859	60	23.896
2		24.540	61	24.497
3		26.018	68	25.937
4		27.209	71.5	27.115
Station 1	9 26	23.856	60	23.793
2		24.540	61	24.497
3		26.018	68	25.937
4		27.208	71.5	27.114
Station 1	9 27	23.855	60	23.792
2		24.542	61	24.499
3		26.018	68	25.937
4		27.208	71.5	27.114
Station 1	9 28	23.855	60.5	23.791
2		24.543	61	24.500
3		26.018	67.5	25.939
4		27.208	71.5	27.114
Station 1	9 29	23.855	60.5	23.791
2		24.540	61	24.497
3		26.015	67	25.937
4		27.208	71.5	27.114
Station 1	9 30	23.853	60.5	23.789
2		24.543	61	24.500
3		26.015	67	25.937
4		27.208	71.5	27.114
Station 1	9 31	23.850	60.5	23.786
2		24.543	61	24.500
3		26.013	67	25.937
4		27.206	71.5	27.114
Station 1	9 32	23.849	60.5	23.785
2		24.540	61	24.497
3		26.012	66.5	25.935
4		27.206	71.5	27.113
Station 1	9 33	23.847	60.5	23.783
2		24.541	61.5	24.501
3		26.013	66.5	25.935
4		27.206	71.5	27.113
Station 1	9 34	23.840	60.5	23.777
2		24.540	61	24.500
3		26.009	66.5	25.932
4		27.205	71.5	27.111
Station 1	9 35	23.840	60.5	23.785
2		24.543	61	24.500
3		26.009	66.5	25.932
4		27.205	71.5	27.111
Station 1	9 36	23.840	60.5	23.785
2		24.543	61	24.500
3		26.009	66.5	25.932
4		27.205	71.5	27.111
Station 1	9 37	23.840	60.5	23.785
2		24.540	61	24.497
3		26.009	66.5	25.932
4		27.205	71.5	27.111
Station 1	9 38	23.840	60.5	23.785
2		24.540	61	24.497
3		26.009	66.5	25.932
4		27.205	71.5	27.111
Station 1	9 39	23.840	60.5	23.785
2		24.540	61	24.497
3		26.009	66.5	25.932
4		27.205	71.5	27.111
Station 1	9 40	23.840	60.5	23.785
2		24.540	61	24.497
3		26.009	66.5	25.932
4		27.205	71.5	27.111
Station 1	9 41	23.840	60.5	23.785
2		24.540	61	24.497
3		26.009	66.5	25.932
4		27.205	71.5	27.111
Station 1	9 42	23.840	60.5	23.785
2		24.540	61	24.497
3		26.009	66.5	25.932
4		27.205	71.5	27.111
Station 1	9 43	23.840	60.5	23.785
2		24.540	61	24.497
3		26.009	66.5	25.932
4		27.205	71.5	27.111
Station 1	9 44	23.840	60.5	23.785
2		24.540	61	24.497
3		26.009	66.5	25.932
4		27.205	71.5	27.111
Station 1	9 45	23.840	60.5	23.785
2		24.544	61	24.501
3		26.010	66.5	25.933
4		27.205	71.5	27.111
Station 1	9 46	23.840	60.5	23.785
2		24.543	61	24.500
3		26.009	66.5	25.932
4		27.205	71.5	27.111
Station 1	9 47	23.840	60.5	23.777
2		24.540	61	24.497
3		26.009	66.5	25.932
4		27.205	71.5	27.111
Station 1	9 48	23.840	60.5	23.785
2		24.539	61	24.496
3		26.009	66.5	25.932
4		27.205	71.5	27.111
Station 1	9 49	23.846	60.5	23.782
2		24.540	61	24.497
3		26.009	66.5	25.932
4		27.205	71.5	27.111
Station 1	9 50	23.845	60.5	23.781
2		24.538	60.5	24.496
3		26.009	66.5	25.932
4		27.205	71.5	27.111
Station 1	9 51	23.840	60.5	23.777
2		24.542	60	24.500
3		26.009	66.5	25.932
4		27.205	71.5	27.111
Station 1	9 52	23.841	60	23.778
2		24.542	60.5	24.500
3		26.005	66	25.929
4		27.205	71.5	27.111
Station 1	9 53	23.842	60	23.779
2		24.540	60.5	24.498
3		26.005	66.5	25.930
4		27.205	71.5	27.111

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Meteorological record for June 23, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Station 1	9 0	23.873	71	23.786
2		24.505	65	24.433
3		25.952	68.5	25.870
4		27.161	68	27.076
Station 1	9 1	23.874	71	23.786
2		24.505	65	24.433
3		25.953	68.5	25.871
4		27.161	68	27.076
Station 1	9 2	23.873	71	23.787
2		24.505	65.5	24.433
3		25.955	68	25.874
4		27.161	68	27.076
Station 1	9 3	23.873	71	23.787
2		24.500	66	24.433
3		25.955	67	25.877
4		27.161	68	27.076
Station 1	9 4	23.873	71	23.787
2		24.500	66	24.433
3		25.955	66	25.879
4		27.161	68	27.076
Station 1	9 5	23.873	71	23.787
2		24.500	66	24.433
3		25.955	65.5	25.880
4		27.161	68	27.076
Station 1	9 6	23.873	71	23.787
2		24.500	66	24.433
3		25.955	65.5	25.880
4		27.161	68	27.076
Station 1	9 7	23.873	71	23.787
2		24.510	66.5	24.443
3		25.954	64.5	25.881
4		27.161	64	27.076
Station 1	9 8	23.873	71	23.787
2		24.512	66	24.443
3		25.954	64	25.881
4		27.161	64	27.076
Station 1	9 9	23.873	71	23.787
2		24.512	66	24.443
3		25.954	64	25.881
4		27.161	64	27.076
Station 1	9 10	23.873	71	23.787
2		24.512	66	24.443
3		25.954	64	25.881
4		27.161	64	27.076
Station 1	9 11	23.873	71	23.787
2		24.512	66	24.443
3		25.954	64	25.881
4		27.161	64	27.076
Station 1	9 12	23.873	71	23.787
2		24.512	66	24.443
3		25.954	64	25.881
4		27.161	64	27.076
Station 1	9 13	23.873	71	23.787
2		24.512	66	24.443
3		25.954	64	25.881
4		27.161	64	27.076
Station 1	9 14	23.873	71	23.787
2		24.512	66	24.443
3		25.954	64	25.881
4		27.161	64	27.076
Station 1	9 15	23.874	74.5	23.780
2		24.512	67	24.450
3		25.953	64	25.880
4		27.162	67.5	27.078
Station 1	9 16	23.874	74.5	23.780
2		24.513	67	24.450
3		25.950	64	25.879
4		27.162	67.5	27.078
Station 1	9 17	23.876	75	23.781
2		24.512	67.5	24.453
3		25.950	64	25.879
4		27.162	67.5	27.078
Station 1	9 18	23.876	75	23.781
2		24.512	67.5	24.453
3		25.951	64	25.879
4		27.162	67.5	27.078
Station 1	9 19	23.873	75	23.785
2		24.512	67.5	24.453
3		25.949	63.5	25.878
4		27.162	67.5	27.078
Station 1	9 20	23.880	73	23.785
2		24.513	63	24.454
3		25.948	63.5	25.878
4		27.162	67.5	27.078
Station 1	9 21	23.880	73.5	23.784
2		24.513	63	24.451
3		25.948	63.5	25.878
4		27.162	67.5	27.078
Station 1	9 22	23.880	73.5	23.784
2		24.513	63	24.451
3		25.948	63.5	25.878
4		27.162	67.5	27.078
Station 1	9 23	23.880	73.5	23.784
2		24.513	63	24.451
3		25.948	63.5	25.878
4		27.162	67.5	27.078
Station 1	9 24	23.881	73.5	23.785
2		24.513	63.5	24.453
3		25.943	62.5	25.875
4		27.161	67.5	27.077
Station 1	9 25	23.881	73.5	23.785
2		24.513	63.5	24.453
3		25.943	62.5	25.875
4		27.161	67.5	27.077
Station 1	9 26	23.881	73.5	23.785
2		24.513	64.5	24.453
3		25.942	62.5	25.873
4		27.161	67.5	27.077
Station 1	9 27	23.881	73.5	23.784
2		24.513	63	24.453
3		25.940	62.5	25.873
4		27.161	67.5	27.077
Station 1	9 28	23.881	73.5	23.784
2		24.513	63	24.453
3		25.940	62.5	25.873
4		27.161	67.5	27.077
Station 1	9 29	23.881	73.5	23.784
2		24.513	63	24.453
3		25.940	62.5	25.873
4		27.161	67.5	27.077
Station 1	9 30	23.881	73.5	23.784
2		24.513	63	24.453
3		25.940	62.5	25.873
4		27.161	67.5	27.077
Station 1	9 31	23.881	73.5	23.784
2		24.513	63	24.453
3		25.940	62.5	25.873
4		27.161	67.5	27.077
Station 1	9 32	23.881	73.5	23.784
2		24.513	63.5	24.453
3		25.940	62.5	25.873
4		27.161	67.5	27.077
Station 1	9 33	23.881	73.5	23.784
2		24.513	63	24.453
3		25.941	62.5	25.873
4		27.161	67.5	27.077
Station 1	9 34	23.881	73.5	23.784
2		24.513	63.5	24.453
3		25.940	62.5	25.872
4		27.161	67.5	27.077
Station 1	9 35	23.881	73.5	23.784
2		24.513	63.5	24.453
3		25.940	63	25.873
4		27.161	68	27.076
Station 1	9 36	23.881	73.5	23.784
2		24.513	63.5	24.453
3		25.941	63	25.874
4		27.161	63	27.076
Station 1	9 37	23.881	73.5	23.784
2		24.513	64.5	24.453
3		25.941	61.5	25.870
4		27.161	63	27.076
Station 1	9 38	23.881	73.5	23.784
2		24.513	63.5	24.453
3		25.941	62.5	25.870
4		27.161	63.5	27.074

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Meteorological record for June 29, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Station 1	9 0	23.930	63	23.863
2		24.583	71	24.518
3		26.003	68	25.922
4				
Station 1	9 1	23.929	63	23.862
2		24.582	71	24.517
3		26.002	68	25.921
4				
Station 1	9 2	23.928	62	23.861
2		24.584	71	24.519
3		26.002	67.5	25.923
4				
Station 1	9 3	23.927	62	23.860
2		24.584	71.5	24.518
3		26.002	67.5	25.923
4				
Station 1	9 4	23.926	62	23.861
2		24.584	72	24.517
3		26.003	67.5	25.924
4				
Station 1	9 5	23.926	62	23.861
2		24.584	72	24.517
3		26.005	67.5	25.926
4				
Station 1	9 6	23.928	62	23.861
2		24.584	72	24.517
3		26.005	67	25.927
4				
Station 1	9 7	26.027	62	23.960
2		24.584	72	24.517
3		26.005	67	25.927
4				
Station 1	9 8	23.927	62.5	23.850
2		24.584	72	24.517
3		26.005	67	25.927
4				
Station 1	9 15	23.926	62.5	23.858
2		24.584	72	24.517
3		26.004	66.5	25.927
4				
Station 1	9 16	23.926	62.5	23.858
2		24.584	72	24.517
3		26.003	66.5	25.926
4				
Station 1	9 17	23.926	62.5	23.858
2		24.585	72	24.518
3		26.003	66.5	25.926
4				
Station 1	9 18	23.926	62.5	23.856
2		24.583	72	24.516
3		26.002	66.5	25.925
4				
Station 1	9 19	23.926	62.5	23.856
2		24.580	72	24.513
3		26.000	66.5	25.923
4				
Station 1	9 20	23.925	62.5	23.856
2		24.584	72	24.517
3		26.000	66.5	25.923
4				
Station 1	9 21	23.925	62.5	23.856
2		24.583	71.5	24.516
3		26.000	66.5	25.923
4				
Station 1	9 22	23.925	62.5	23.856
2		24.584	71	24.516
3		26.000	66.5	25.923
4				
Station 1	9 23	23.925	62.5	23.858
2		24.580	71	24.515
3		26.000	66.5	25.923
4				
Station 1	9 30	23.924	63	23.857
2		24.585	70.5	24.521
3		26.000	66.5	25.923
4		27.221	70	27.107
Station 1	9 31	23.924	63	23.857
2		24.584	70.5	24.520
3		26.000	66.5	25.923
4		27.221	70	27.107
Station 1	9 32	23.924	63	23.857
2		24.583	70.5	24.519
3		26.000	66.5	25.923
4		27.221	70	27.107
Station 1	9 33	23.924	62	23.857
2		24.580	70.5	24.516
3		26.000	66.5	25.923
4		27.222	70	27.108
Station 1	9 34	23.924	63	23.857
2		24.581	70.5	24.517
3		26.000	66.5	25.923
4		27.222	70	27.108
Station 1	9 35	23.925	63	23.856
2		24.584	70.5	24.520
3		26.000	66.5	25.923
4		27.223	70	27.108
Station 1	9 36	23.924	62	23.857
2		24.582	70	24.519
3		26.000	66.5	25.923
4		27.220	70	27.115
Station 1	9 37	23.924	63	23.857
2		24.584	70	24.521
3		26.000	66.5	25.923
4		27.220	70	27.115
Station 1	9 38	23.924	62	23.857
2		24.583	70	24.520
3		26.000	66.5	25.923
4		27.220	70	27.115
Station 1	9 45	23.923	62	23.855
2		24.581	69.5	24.519
3		26.000	66	25.924
4				
Station 1	9 46	23.923	62	23.855
2		24.581	69.5	24.519
3		26.000	66	25.924
4				
Station 1	9 47	23.920	62	23.853
2		24.579	69.5	24.517
3		26.000	66	25.924
4				
Station 1	9 48	23.920	62	23.853
2		24.579	69.5	24.517
3		26.000	66.5	25.923
4				
Station 1	9 49	23.920	62	23.853
2		24.579	69.5	24.516
3		26.000	66.5	25.923
4				
Station 1	9 50	23.920	62	23.853
2		24.575	69	24.514
3		26.000	66.5	25.923
4				
Station 1	9 51	23.920	63	23.853
2		24.577	69	24.516
3		26.000	66	25.924
4				
Station 1	9 52	23.918	63	23.851
2		24.575	69	24.514
3		26.000	66	25.924
4				
Station 1	9 53	23.918	61.5	23.850
2		24.573	68.5	24.513
3		26.000	66	25.924
4				

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Station 1	9	9	23.927	69.5	23.850	Station 1	9	24	23.925	62.5	23.857	Station 1	9	30	23.922	62	23.855	Station 1	9	54	23.918	61.5	23.852
2			24.584	72	24.517	2			24.581	71	24.516	2			24.584	70	24.521	2			24.575	68.5	24.515
3			26.003	67	25.925	3			26.000	66.5	25.923	3			26.000	66.5	25.923	3			26.000	66.5	25.923
4						4						4						4					
Station 1	9	10	23.927	62.5	23.850	Station 1	9	25	23.925	62.5	23.857	Station 1	9	40	23.923	62	23.856	Station 1	9	55	23.918	61.5	23.852
2			24.584	72	24.517	2			24.581	70.5	24.517	2			24.582	70	24.519	2			24.571	68	24.513
3			26.005	67	25.927	3			26.000	66.5	25.923	3			26.000	66.5	25.923	3			26.000	66.5	25.923
4						4						4						4					
Station 1	9	11	23.924	62.5	23.856	Station 1	9	26	23.925	62.5	23.857	Station 1	9	41	23.923	62	23.856	Station 1	9	56	23.918	61.5	23.852
2			24.582	72	24.515	2			24.582	70.5	24.518	2			24.582	70	24.519	2			24.574	68	24.516
3			26.005	67	25.927	3			26.000	66.5	25.923	3			26.000	66.5	25.923	3			26.000	66.5	25.923
4						4						4						4					
Station 1	9	12	23.924	62.5	23.856	Station 1	9	27	23.925	62	23.858	Station 1	6	42	23.923	62	23.856	Station 1	9	57	23.918	61.5	23.852
2			24.580	72	24.513	2			24.582	70.5	24.518	2			24.582	70	24.519	2			24.570	68	24.512
3			26.005	67	25.927	3			26.000	66.5	25.923	3			26.001	66	25.925	3			26.000	66	25.924
4						4						4						4					
Station 1	9	13	23.926	62.5	23.858	Station 1	9	28	23.924	62	23.857	Station 1	9	43	23.923	62	23.856	Station 1	9	58	23.918	61.5	23.852
2			24.584	72	24.517	2			24.581	70.5	24.517	2			24.580	69.5	24.518	2			24.571	68	24.513
3			26.005	67	25.927	3			26.000	66.5	25.923	3			26.001	66	25.925	3			26.000	66	25.924
4						4						4						4					
Station 1	9	14	23.926	62.5	23.858	Station 1	9	29	23.924	62	23.857	Station 1	9	44	23.923	62	23.856	Station 1	9	59	23.918	61.5	23.852
2			24.584	72	24.517	2			24.581	70.5	24.517	2			24.579	69.5	24.517	2			24.571	68	24.513
3			26.005	67	25.927	3			26.000	66.5	25.923	3			26.000	66	25.924	3			26.000	66	25.924
4						4						4						4					

Station No. 1.—Summit of Mount Washington. Elevation of barometer above sea-level.. 6,285.4 feet.
Station No. 2.—Above Jacob's Ladder. Eelevation of barometer above sea-level ..... 5,553.3 feet.
Station No. 3.—Waumbeck House. Elevation of barometer above sea-level ..... 4,058.7 feet.
Station No. 4.—Base of Mount Washington. Elevation of barometer above sea-level..... 2,898.3 feet.

NOTE.—Barometer readings corrected for temperature and instrumental error only.

*Owing to repairs being made in the telegraph-office no observation could be taken at this station.

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Meteorological record for June 30, 1873.

(Minute barometrical observations.)

Place of observation.	Time of observation.	Barometer.	Attached thermometer.	Corrected barometer.
	p. m.			
Station 1	9 0	23.952	69	23.870
2		24.596	66.5	24.541
3		26.058	66.5	25.991
4		27.395	71	27.201
Station 1	9 1	23.952	69	23.870
2		24.593	66.5	24.538
3		26.060	66.5	25.993
4		27.395	71	27.201
Station 1	9 2	23.952	69	23.870
2		24.595	67	24.539
3		26.061	66.5	25.994
4		27.395	71	27.201
Station 1	9 3	23.952	69	23.870
2		24.592	67	24.536
3		26.061	66.5	25.994
4		27.395	71	27.201
Station 1	9 4	23.952	69	23.870
2		24.593	67	24.537
3		26.062	66.5	25.995
4		27.395	71	27.201
Station 1	9 5	23.952	69	23.870
2		24.592	67	24.536
3		26.063	66.5	25.996
4		27.395	71	27.201
Station 1	9 6	23.952	69	23.870
2		24.600	67.5	24.544
3		26.063	66	25.997
4		27.396	71	27.204
Station 1	9 7	23.952	69	23.870
2		24.602	67.5	24.546
3		26.064	66.5	25.999
4		27.396	71	27.204
Station 1	9 8	23.952	69	23.870
2		24.600	67.5	24.544
3		26.063	66.5	25.998
4		27.396	71	27.204
Station 1	9 9	23.952	69	23.870
2		24.600	67.5	24.544
3		26.063	66.5	25.998
4		27.396	71	27.204
Station 1	9 10	23.952	69	23.870
2		24.600	67.5	24.544
3		26.063	66.5	25.998
4		27.396	71	27.204
Station 1	9 11	23.952	69	23.870
2		24.600	67.5	24.544
3		26.063	66.5	25.998
4		27.396	71	27.204
Station 1	9 12	23.952	69	23.870
2		24.600	67.5	24.544
3		26.063	66.5	25.998
4		27.396	71	27.204
Station 1	9 13	23.952	69	23.870
2		24.600	67.5	24.544
3		26.063	66.5	25.998
4		27.396	71	27.204
Station 1	9 14	23.952	69	23.870
2		24.600	67.5	24.544
3		26.063	66.5	25.998
4		27.396	71	27.204
Station 1	9 15	23.953	70	23.869
2		24.597	68	24.540
3		26.057	65	25.993
4		27.392	72.5	27.204
Station 1	9 16	23.953	70	23.869
2		24.610	68.5	24.551
3		26.068	65	25.994
4		27.392	72.5	27.204
Station 1	9 17	23.953	70	23.869
2		24.602	68.5	24.543
3		26.067	65	25.993
4		27.392	72.5	27.204
Station 1	9 18	23.953	70	23.869
2		24.600	68.5	24.541
3		26.065	65	25.991
4		27.392	72.5	27.204
Station 1	9 19	23.952	70	23.868
2		24.600	68.5	24.541
3		26.065	65	25.991
4		27.392	72.5	27.204
Station 1	9 20	23.952	70	23.868
2		24.597	68.5	24.548
3		26.065	65	25.991
4		27.392	72.5	27.204
Station 1	9 21	23.952	70	23.868
2		24.607	68.5	24.548
3		26.064	65	25.990
4		27.391	72.5	27.203
Station 1	9 22	23.952	70	23.868
2		24.605	68.5	24.546
3		26.063	65	25.989
4		27.392	72.5	27.204
Station 1	9 23	23.953	70	23.869
2		24.605	68.5	24.546
3		26.063	65	25.989
4		27.392	72.5	27.204
Station 1	9 24	23.953	70	23.869
2		24.607	68.5	24.548
3		26.063	65	25.989
4		27.392	72.5	27.204
Station 1	9 25	23.953	70	23.869
2		24.607	68.5	24.548
3		26.063	65	25.989
4		27.392	72.5	27.204
Station 1	9 26	23.953	70	23.869
2		24.607	68.5	24.548
3		26.063	65	25.989
4		27.392	72.5	27.204
Station 1	9 27	23.953	70	23.869
2		24.607	68.5	24.548
3		26.063	65	25.989
4		27.392	72.5	27.204
Station 1	9 28	23.953	70	23.869
2		24.607	68.5	24.548
3		26.063	65	25.989
4		27.392	72.5	27.204
Station 1	9 29	23.953	70	23.869
2		24.607	68.5	24.548
3		26.063	65	25.989
4		27.392	72.5	27.204
Station 1	9 30	23.952	70	23.868
2		24.597	68	24.539
3		26.060	64.5	25.987
4		27.393	72.5	27.205
Station 1	9 31	23.953	70	23.869
2		24.595	67.5	24.538
3		26.060	64.5	25.987
4		27.393	72.5	27.205
Station 1	9 32	23.952	70	23.868
2		24.597	67.5	24.539
3		26.060	64.5	25.987
4		27.393	72.5	27.205
Station 1	9 33	23.952	70	23.868
2		24.602	67.5	24.543
3		26.060	64.5	25.987
4		27.393	72.5	27.205
Station 1	9 34	23.952	70	23.868
2		24.600	67.5	24.543
3		26.060	64.5	25.987
4		27.392	72.5	27.204
Station 1	9 35	23.952	70	23.868
2		24.600	67	24.544
3		26.060	64.5	25.987
4		27.392	72.5	27.204
Station 1	9 36	23.952	70	23.868
2		24.600	67	24.544
3		26.060	64.5	25.987
4		27.393	72.5	27.205
Station 1	9 37	23.952	70	23.868
2		24.600	67	24.544
3		26.058	64.5	25.985
4		27.392	72.5	27.204
Station 1	9 38	23.951	70	23.867
2		24.604	67	24.548
3		26.054	64.5	25.985
4		27.393	72.5	27.205
Station 1	9 45	23.958	70	23.874
2		24.600	66.5	24.545
3		26.060	64.5	25.987
4		27.392	72.5	27.204
Station 1	9 46	23.958	70	23.874
2		24.602	66.5	24.547
3		26.059	64.5	25.986
4		27.392	72.5	27.204
Station 1	9 47	23.958	70	23.874
2		24.602	66.5	24.547
3		26.059	64.5	25.986
4		27.391	72.5	27.203
Station 1	9 48	23.958	70	23.874
2		24.600	66.5	24.545
3		26.060	64.5	25.987
4		27.392	72.5	27.204
Station 1	9 49	23.958	70	23.874
2		24.600	66.5	24.545
3		26.060	64.5	25.987
4		27.392	72.5	27.204
Station 1	9 50	23.958	70	23.874
2		24.603	66	24.549
3		26.060	64.5	25.987
4		27.392	72.5	27.204
Station 1	9 51	23.954	70	23.870
2		24.605	66	24.551
3		26.060	64.5	25.987
4		27.393	72.5	27.205
Station 1	9 52	23.956	70	23.872
2		24.605	66	24.553
3		26.060	64.5	25.987
4		27.391	72.5	27.203
Station 1	9 53	23.956	70	23.872
2		24.607	66	24.555
3		26.060	64.5	25.987
4		27.391	72.5	27.203

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K.—*Meteorological record for May* 1, 1873.

(Hourly observation.)

NOTE.—Elevation of barometer at summit above sea-level, 6,225.4 feet. Elevation of barometer at base above sea-level, 2,826.3 feet. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM.	HYGROM.		WIND.			LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Remarks.
			Attached.	Dry bulb.	Wet bulb.	Direction.	Velocity per hour.	Pressure per sq. ft.	Kind.	Amount.	Kind.	Amount.	Direction, (moving From—)	Commen'd.	Ended.		
Summit	1 0 a. m.	23 842 51	24	42	23	N. W.	42	8 22	0	0	0	0	0	.....	.....	.....	Clear.
Base		27 360 54	36	71	33	E.	27	02	Stratus ...	1-4	0	0	0	.....	.....	.....	Clear.
Summit	2 0 a. m.	23 831 51	24	57	23	N. W.	37	6 84	0	0	0	0	0	.....	.....	.....	Clear.
Base		27 350 53	33	80	31	E.	2	02	0	0	0	0	0	.....	.....	.....	Clear.
Summit	3 0 a. m.	23 835 51	23	66	22	N. W.	34	5 78	0	0	0	0	0	.....	.....	.....	Clear.
Base		27 345 51	32	79	30	E.	21	02	0	0	0	0	0	.....	.....	.....	Clear.
Summit	4 0 a. m.	23 843 55	23	79	21	N. W.	30	4 50	0	0	0	0	0	.....	.....	.....	Clear.
Base		27 342 49	31	79	29	E.	2	02	0	0	0	0	0	.....	.....	.....	Clear.
Summit	5 0 a. m.	23 840 54	29	78	28	N. W.	26	3 38	0	0	0	0	0	.....	.....	.....	Clear.
Base		27 340 45	30	85	28	E.	4	06	0	0	0	0	0	.....	.....	.....	Clear.
Summit	6 0 a. m.	23 849 50	23	78	21	N. W.	26	3 38	0	0	0	0	0	.....	.....	.....	Clear.
Base		27 360 47	30	86	28	E.	2	02	0	0	0	0	0	.....	.....	.....	Clear.
Summit	7 0 a. m.	23 880 53	23	71	22	N. W.	20	2 00	0	0	0	0	0	.....	.....	.....	Clear.
Base		27 380 45	34	87	31	E.	2	02	0	0	0	0	0	.....	.....	.....	Clear.
Summit	7 57 a. m.	23 885 53	24	67	23	N. W.	15	1 12	0	0	0	0	0	.....	.....	.....	Clear.
Base		27 387 40	40	68	34	S. W.	2	02	0	0	0	0	0	.....	.....	.....	Clear.
Summit	9 0 a. m.	23 870 58	24	61	24	N. W.	24	2 88	0	0	0	0	0	.....	.....	.....	Clear.
Base		27 384 52	43	57	36	S.	4	08	0	0	0	0	0	.....	.....	.....	Clear.
Summit	10 0 a. m.	23 868 55	35	73	23	N. W.	28	2 42	0	0	Cumulus ...	1-4	N. W. S.	.....	.....	.....	Fair.
Base		27 371 51	45	93	37	S. W.	12	72	0	0	Cumulus ...	1-8	W.	.....	.....	.....	Clear.
Summit	11 0 a. m.	23 840 55	35	75	23	W.	30	4 50	0	0	Cumulus ...	1-4	W. S.	.....	.....	.....	Fair.
Base		27 359 53	48	90	39	W.	10	50	0	0	Cumulus ...	1-4	W.	.....	.....	.....	Fair.
Summit	12 0 m. ..	23 840 55	25	75	23	W.	28	3 92	0	0	Cumulus ...	2-4	W.	.....	.....	.....	Fair.
Base		27 346 55	48	86	39	S. W.	10	50	0	0	Cumulus ...	1-4	W.	.....	.....	.....	Fair.
Summit	1 0 p. m.	23 830 53	25	75	24	W.	36	6 48	0	0	Cumulus ...	2-4	W.	.....	.....	.....	Fair.
Base		27 346 58	51	84	41	W.	8	32	0	0	Cumulus ...	2-4	W.	.....	.....	.....	Fair.
Summit	2 0 p. m.	23 840 52	24	74	28	W.	43	9 24	0	0	Cumulus ...	2-4	W.	.....	.....	.....	Fair.
Base		27 343 68	53	81	43	W.	12	72	Cumulus ...	1-4	Cirrus ...	1-4	Calm.	.....	.....	.....	Fair.
Summit	3 0 p. m.	23 836 51	24	74	23	W.	46	11 52	0	0	Cumulus ...	2-4	W.	.....	.....	.....	Fair.
Base		27 336 69	53	93	44	W.	14	98	0	0	Cumulus ...	2-4	N. W.	.....	.....	.....	Fair.
Summit	4 0 p. m.	23 800 54	24	74	22	W.	50	12 50	0	0	Cumulus ...	2-4	W.	.....	.....	.....	Fair.
Base		27 330 71	41	91	41	N. W.	16	1 92	0	0	Cumulus ...	3-4	N. W.	.....	.....	.....	Cloudy.
Summit	4 57 p. m.	23 810 55	24	71	22	W.	46	10 58	0	0	Cumulus ...	2-4	W.	.....	.....	.....	Fair.
Base		27 312 67	31	85	44	W.	21	2 52	0	0	Cumulus ...	2-4	W.	.....	.....	.....	Fair.
Summit	6 0 p. m.	23 810 54	23	73	21	W.	41	9 84	0	0	Cumulus ...	2-4	W.	.....	.....	.....	Fair.
Base		27 310 63	41	89	41	W.	6	72	Cirrus ...	1-4	Cirrus ...	2-4	W.	.....	.....	.....	Fair.

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Summit	7 0 p.m.	23.825	58	24	23.767	23	21	73	W.	32	11.52	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Fair.
Base ...		27.307	61	44	27.215	44	37	45	S. W.	4	.08	....	Stratus ...	1-4	Cirrus	1-4	W.	.....	.....	.....	Fair.
Summit	8 0 p.m.	23.800	57	23	23.744	23	21	73	W.	24	2.88	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Fair.
Base ..		27.310	61	38	27.230	38	34	63	S. E.	4	.08	....	Stratus ...	1-4	Cirrus	1-4	Calm..	.....	.....	.....	Fair.
Summit	9 0 p.m.	23.810	55	24	23.758	24	22	74	W.	18	1.62	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Fair.
Base ..		27.300	60	37	27.213	37	34	73	S. E.	2	.02	....	0	0	Cirrus	1-4	Calm..	.....	.....	.....	Fair.
Summit	10 0 p.m.	23.800	55	24	23.748	24	22	74	W.	20	2.00	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Clear.
Base ...		27.300	57	37	27.220	37	34	73	S. E.	4	.08	....	0	0	Cirrus	2-4	Calm..	.....	.....	.....	Fair.
Summit	11 29 p.m.	23.800	54	24	23.750	24	22	74	W.	28	3.92	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Fair.
Base ...		27.280	55	36	27.205	36	33	71	S. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	12 mid-	23.807	52	24	23.762	24	22	74	W.	26	3.38	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Fair.
Base ...	night.	27.278	55	36	27.203	36	33	71	S. E.	4	.08	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Clear.

Meteorological record for May 2, 1873.

Summit	1 00 a. m.	23.812	53	25	23.764	25	24	87	W.	24	2.88	....	Stratus ...	2-4	Cirro-strat.	1-4	W.	.....	.....	.....	Fair.
Base ...		27.258	54	35	27.185	35	32	70	S. E.	4	.08	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Clear.
Summit	2 00 a. m.	23.810	55	24	23.758	24	23	87	W.	23	2.64	....	Stratus ...	2-4	Cirro-strat.	1-4	W.	.....	.....	.....	Fair.
Base ...		27.258	53	35	27.188	35	32	70	E.	4	.08	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Clear.
Summit	3 0 a. m.	23.800	56	24	23.746	24	23	87	W.	20	2.00	....	Stratus ...	1-4	Cirro-cum.	3-4	W.	.....	.....	.....	Fair.
Base ...		27.258	53	35	27.180	35	32	70	E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	4 0 a. m.	23.802	57	24	23.746	24	23	87	W.	30	4.50	....	Stratus ...	1-4	Cirro-cum.	1-4	W.	.....	.....	.....	Fair.
Base ...		27.242	52	35	27.175	35	32	70	E.	2	.02	....	0	0	Cirrus	2-4	W.	.....	.....	.....	Fair.
Summit	5 0 a. m.	23.800	55	24	23.748	24	23	87	W.	24	2.88	....	Hazy	....	Cirro-cum.	1-4	W.	.....	.....	.....	Fair.
Base ...		27.242	52	35	27.175	35	32	70	E.	4	.08	....	Stratus ...	1-4	Cirrus	2-4	W.	.....	.....	.....	Cloudy.
Summit	6 0 a. m.	23.805	54	25	23.755	25	24	87	W.	25	3.12	....	Hazy	....	Cirro-cum.	1-4	W.	.....	.....	.....	Fair.
Base ...		27.245	53	37	27.176	37	34	71	E.	4	.08	....	0	0	Cirrus	3-4	W.	.....	.....	.....	Cloudy.
Summit	7 0 a. m.	23.805	56	27	23.751	27	25	77	W.	12	.72	....	Hazy	...	Cirro-cum.	1-4	W.	.....	.....	.....	Fair.
Base ...		27.243	52	39	27.176	39	36	73	Calm.	0	.00	....	0	0	Cirrus	2-4	W.	.....	.....	.....	Fair.
Summit	7 57 a. m.	23.810	57	28	23.754	28	26	77	W.	10	.50	....	Hazy	....	Stratus....	4-4	W.	.....	.....	.....	Fair.
Base ...		27.242	57	44	27.161	44	39	60	N. W.	0	.00	....	0	0	Cirrus	2-4	W.	.....	.....	.....	Fair.
Summit	9 0 a. m.	23.835	68	30	23.755	30	27	68	W.	15	1.12	....	Hazy	....	Stratus....	4-4	W.	.....	.....	.....	Fair.
Base ..		27.252	60	44	27.166	44	38	53	N. W.	2	.02	....	0	0	Cirrus	2-4	W.	.....	.....	.....	Fair.
Summit	10 0 a. m.	23.825	62	38	23.758	32	30	79	W.	12	.72	....	Hazy	....	Stratus....	4-4	W.	.....	.....	.....	Fair.
Base ...		27.238	59	49	27.154	49	41	44	S. W.	2	.02	....	0	0	Cirro-strat.	3-4	W.	.....	.....	.....	Cloudy.
Summit	11 0 a. m.	23.790	61	32	23.725	32	30	79	W.	7	.24	....	Hazy	....	Stratus....	4-4	W.	.....	.....	.....	Fair.
Base ...		27.220	62	48	27.129	48	39	36	S. E.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	12 0 m...	23.780	65	32	23.707	32	30	79	W.	10	.50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.211	61	47	27.123	46	38	40	N. W.	6	.18	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	1 0 p.m.	23.775	68	31	23.695	31	30	89	W.	6	.18	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base ...		27.187	60	46	27.101	46	38	40	N. W.	1	.01	....	Stratus ...	4-4	Hidden ...	....	.....	2.45 p. m.	.....	.....	Cloudy.
Summit	2 0 p.m.	23.758	63	31	23.689	31	30	89	S.	7	.24	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base ...		27.179	59	46	27.096	46	38	40	N. W.	2	.02	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	3 0 p.m.	23.730	66	30	23.656	30	29	89	S.	12	.72	....	Nimbus...	4-4	Hidden ...	....	.....	2.45 p. m.	.....	.....	Light snow.
Base ...		27.150	57	40	27.071	40	36	65	S. E.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Summit	4 0 p.m.	23.715	70	29	23.633	29	28	80	S.	6	.18	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base ..		27.142	54	38	27.070	38	35	72	W.	4	.08	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.

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Meteorological record for May 2, 1873—Continued.

(Hourly observation.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
Summit	4 57 p. m.	23.688	67	29	23.612	29	28	89	S.	14	.98	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.05	Light snow.
Base...		27.120	53	35	27.051	35	34	85	S. W.	1	.01	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Summit	6 0 p. m.	23.675	64	29	23.605	29	28	89	S.	17	1.44	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...		27.110	52	33	27.043	33	32.5	95	S. W.	1	.01	....	Nimbus...	4-4	Hidden ...	....	.....	.....	6.57 p. m.	.....	Light snow.
Summit	7 0 p. m.	23.660	64	28	23.590	28	27	88	S.	24	3.92	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...		27.080	50	33	27.018	33	32	95	S. W.	1	.01	....	Nimbus...	4-4	Hidden ...	....	.....	7.00 p. m.	.....	.....	Light rain.
Summit	8 0 p. m.	23.650	67	27	23.574	27	26	88	S.	26	3.38	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...		27.067	51	33	27.003	33	32	94.5	W.	1	.01	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light rain.
Summit	9 0 p. m.	23.650	68	27	23.572	27	26	88	S.	34	5.78	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...		27.050	50	33	26.988	33	32	94.5	S. E.	1	.01	....	Nimbus...	4-4	Hidden ...	....	.....	.....	9.50 p. m.	.....	Light rain.
Summit	10 0 p. m.	23.615	65	27	23.543	27	26	88	S.	36	6.48	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...		27.023	50	33	26.961	33	32	94.5	S. W.	1	.01	....	Nimbus...	4-4	Hidden ...	....	.....	9.50 p. m.	11.00 p. m.	.....	Sleeting.
Summit	11 22 p. m.	23.590	70	25	23.508	25	24	88	S.	42	8 82	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...		26.989	48	33	26.933	33	32	94.5	S. E.	1	.01	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.49	Cloudy.
Summit	12 0 mid-night.	23.600	73	25	23.512	25	24	88	S.	36	6.48	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...		26.970	48	33	26.913	33	32	94.5	S. E.	1	.01	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.

Meteorological record for May 3, 1873.

Summit	1 0 a. m.	23.560	65	25	23.488	25	24	88	S.	36	6.48	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...		26.945	51	33	26.881	33	32	95	Calm.	0	.00	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	2 0 a. m.	23.536	66	25	23.465	25	24	84	S. E.	40	8.00	....	Stratus ...	4-4	Hidden ...	....	.....	.....	1.25 a. m.	.63	Threatening.
Base...		26.917	50	33	26.855	32	31	90	S. E.	1	.01	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	3 0 a. m.	23.530	68	25	23.452	25	24	88	E.	37	6.84	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Threatening.
Base...		26.915	49	32	26.855	32	31	90	S. E.	1	.01	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Threatening.
Summit	4 0 a. m.	23.500	62	24	23.435	24	23	87	S. E.	42	8.22	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Threatening.
Base...		26.900	48	32	26.845	32	31	95	S. W.	1	.01	....	Nimbus...	4-4	Hidden ...	....	.....	3.45 a. m.	.....	.....	Light snow.
Summit	5 0 a. m.	23.500	62	24	23.435	24	23	87	E.	35	6.12	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Threatening.
Base...		26.900	47	32	26.845	32	31.5	95	Calm.	0	.00	....	Stratus ...	4-4	Hidden ...	....	.....	.....	4.30 a. m.	.....	Threatening.
Summit	6 0 a. m.	23.465	61	24	23.402	24	23	87	E.	36	6.48	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		26.905	47	31	26.850	31	31	94	Calm.	0	.00	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	

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Summit	7	0 a. m.	23. 480	57	25	23. 444	25	24	88	E.	22	2. 42	....	Nimbus...	4-4	Hidden ...	....	.....	6.15 a. m.	.....	.....	Light snow.
Base...			26. 949	48	32	26. 851	32	31	90	W.	1	.01	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Summit	7	57 a. m.	23. 460	54	24	23. 431	24	23	87	E.	32	5. 12	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...			26. 907	50	32	26. 840	32	31	90	W.	1	.01	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.02	Light snow.
Summit	9	0 a. m.	23. 440	55	25	23. 429	25	24	88	E.	30	4. 50	....	Nimbus...	4-4	Hidden ...	....	.....	7.40 a. m.	.....	.....	Light snow.
Base...			26. 919	53	44	26. 850	34	33	89. 5	W.	4	.08	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Summit	10	0 a. m.	23. 470	55	24	23. 419	24	23	87	E.	31	4. 80	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...			26. 912	54. 5	36	26. 839	36	34	81. 1	S.	2	.02	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Summit	11	0 a. m.	23. 470	57	24	23. 415	24	23	87	E.	36	6. 48	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...			26. 916	55	37	26. 842	37	36	90. 3	S.W.	4	.03	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Summit	12	0 m ..	23. 454	59	25	23. 395	25	24	88	E.	40	8. 00	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...			26. 899	57	37	26. 830	37	36	90. 3	S. E.	8	.32	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Summit	1	0 p. m.	23. 455	58	25	23. 398	25	24	88	E.	50	12. 50	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...			26. 909	55	36	26. 835	36	35	90	S.W.	3	.04	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Summit	2	0 p. m.	23. 455	62	25	23. 390	25	24	88	E.	56	15. 68	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...			26. 910	54	36	26. 838	36	35	90	W.	4	.08	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Summit	3	0 p. m.	23. 474	06	25	23. 400	25	24	88	E.	54	14. 58	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...			26. 922	52	35	26. 855	35	34	90	S.W.	2	.02	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Summit	4	0 p. m.	23. 465	02	24	23. 400	24	23	87	E.	47	11. 04	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...			26. 930	52	33	26. 863	33	32	89	W.	2	.02	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Summit	4	57 p. m.	23. 460	59	22	23. 401	22	21	86	E.	48	11. 52	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.08	Light snow.
Base...			26. 920	54	33	26. 848	33	32	89	S.W.	4	.08	....	Nimbus...	4-4	Hidden ...	....	.....	.....	5.40 p. m.	.05	Light snow.
Summit	6	0 p. m.	23. 440	54	21	23. 391	21	20	85	E.	42	8. 82	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...			26. 927	52	32	26. 860	33	29	61	W.	4	.08	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	7	0 p. m.	23. 450	50	20	23. 410	20	19	85	N. W.	50	12. 50	....	0	0	Stratus ...	4-4	N. W.	.....	6.10 p. m.	.02	Clearing.
Base...			26. 939	52	32	26. 872	32	29	69. 4	S. E.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	8	0 p. m.	23. 440	51	20	23. 398	20	19	85	N.	60	18. 00	....	0	0	Stratus ...	4-4	N.	.....	.....	.....	Clearing.
Base...			26. 956	51	33	26. 892	34	28	43	S. E.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	9	0 p. m.	23. 442	53	20	23. 395	20	19	85	N.	62	19. 22	....	0	0	Stratus ...	4-4	N.	.....	.....	.....	Clearing.
Base...			26. 979	51	31	26. 915	32	28	59	N. E.	4	.08	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Summit	10	0 p. m.	23. 473	54	20	23. 424	20	18	70	N.	66	21. 78	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Fair.
Base...			26. 980	50	31	26. 918	31	28	68. 5	N. E.	4	0. 8	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Summit	11	22 p. m.	23. 498	56	19	23. 445	19	17	69	N.	60	18. 00	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Base...			26. 980	51	32	26. 916	33	28	51	S.W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.01	Cloudy.
Summit	12	0 mid-	23. 498	54	19	23. 449	19	17	69	N.	58	16. 82	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Base...		night.	26. 980	48	32	26. 823	33	28	51	S.W.	8	.32	....	Stratus ...	1-4	Cirrus	1-4	Calm..	.....	.....	.....	Fair.

Meteorological record for May 4, 1873.

Summit	1	0 a. m.	23. 491	52	20	23. 447	20	18	70	N.	62	19. 22	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Base...			26. 980	49	31	26. 920	31	27	58	W.	4	.08	....	0	0	Cirrus	1-4	0	.....	.....	.....	Fair.
Summit	2	0 a. m.	23. 499	53	20	23. 452	20	18	70	N.	59	17. 40	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Base...			26. 988	51	29	26. 924	29	26	66. 5	W.	2	.02	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	3	0 a. m.	23. 530	54	20	23. 481	20	18	70	N.	50	12. 50	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Fair.
Base...			27. 005	47	26	26. 950	26	25	88	W.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	4	0 a. m.	23. 537	56	21	23. 484	21	19	71	N.	48	11. 52	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Fair.
Base...			27. 005	46	24	26. 955	24	23	87	S. E	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	5	0 a. m.	23. 350	56	21	23. 477	21	19	71	N.	40	8. 00	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Fair.
Base...			27. 020	46	23	26. 968	23	22	87	N. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.

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Meteorological record for May 4, 1873—Continued.

(Hourly observation.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,892.3 feet. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
Summit	6 0 a.m.	23.526	49	20	23.488	20	18	70	N.	42	8.82	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Clear.
Base...		27.045	44	24	26.995	24	22.5	81	N. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	7 0 a.m.	23.526	48	20	23.490	20	18	70	N. W.	36	6.48	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base...		27.048	44	28	27.001	28	26	77	N. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	7 57 a. m.	23.533	47	20	23.499	20	18	70	N. W.	42	8.82	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base...		27.060	45	34	27.010	34	33	89.5	N.	1	.01	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	9 0 a. m.	23.570	57	22	23.515	22	20	72	N. W.	30	4.50	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base...		27.082	47	36	27.027	36	32	61	N. W.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	10 0 a. m.	23.585	55	23	23.534	23	21	73	N. W.	24	2.88	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base...		27.098	49.5	38	27.037	39	34	55	N. W.	6	.18	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	11 0 a. m.	23.584	54	24	23.535	24	22	74	N. W.	24	2.88	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base...		27.109	53	41	27.040	41	35	49	N.	10	.50	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	12 0 m...	23.600	58	24	23.543	24	22	74	N. W.	28	3.92	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base...		27.118	57	43	27.039	43	34	28	E.	8	.32	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	1 0 p. m.	23.620	60	24	23.559	24	22	74	W.	50	12.50	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base ..		27.126	58	44	27.045	44	35	30	N. W.	8	.32	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	2 0 p. m.	23.655	62	23	23.590	23	21	73	W.	48	11.52	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base...		27.129	61	47	27.041	47	37	28	N. W.	8	.32	....	0	0	Cumulus..	1-8	N. W.	.....	.....	.....	Clear.
Summit	3 0 p. m.	23.655	60	23	23.594	23	22	86	W.	26	3.38	....	Hazy	....	Cumulus..	2-4	W.	.....	.....	.....	Fair.
Base...		27.129	63	48	27.036	48	40	43	N. W.	8	.32	....	0	0	Cumulus..	2-4	N. W.	.....	.....	.....	Fair.
Summit	4 0 p. m.	23.660	56	23	23.607	23	22	86	W.	29	4.20	....	Hazy	....	Cumulus..	2-4	N. W.	.....	.....	.....	Fair.
Base...		27.148	64	48	27.052	48	40	43	N. W.	12	.72	....	0	0	Cumulus..	2-4	N. W.	.....	.....	.....	Fair.
Summit	4 57 p. m.	23.640	53	23	23.593	23	22	86	W.	24	2.88	....	Hazy	....	Cumulus..	2-4	N. W. S.	.....	.....	.....	Fair.
Base...		27.160	63	46	27.067	46	39	47	W.	4	.08	....	0	0	Cumulus..	2-4	N. W.	.....	.....	.....	Fair.
Summit	6 0 p. m.	23.630	56	23	23.577	23	22	86	W.	29	4.20	....	Hazy	....	Cumulus..	1-4	N. W.	.....	.....	.....	Fair.
Base...		27.170	62	44	27.079	44	37	45	N. W.	4	.08	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
Summit	7 0 p. m.	23.662	62	22	23.597	22	21	85	W.	34	5.78	....	0	0	0	0	0	.....	.....	.....	Clear.
Base...		27.188	58	36	27.107	36	34	70	N. W.	8	.32	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Fair.
Summit	8 0 p. m.	23.656	59	22	23.597	22	21	85	W.	30	6.48	....	0	0	0	0	0	.....	.....	.....	Clear.
Base...		27.170	56	34	27.103	34	32	80	N.	4	.08	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Fair.
Summit	9 0 p. m.	23.645	53	22	23.598	22	21	75	W.	43	9.24	....	0	0	0	0	0	.....	.....	.....	Clear.
Base		27.178	56	34	27.102	34	32	70	N.	4	.08	....	0	0	Cirrus	2-4	0	.....	.....	.....	Fair.
Summit		23.620	59	22	23.556	23	21	85	W.	48	11.52	....	0	0	0	0	0	.....	.....	.....	Clear.
Base	10 0 p. m.	27.140	54	35	27.098	36	33	70.5	N.	8	.32	....	0	0	Cirrus	2-4	N. W.	.....	.....	.....	Fair.

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Summit	11 22 p. m.	23. 580	53	23	23. 543	23	21	85	W.	43	9. 24	....	0	0	Stratus ...	1-4	W.	.....	.....	.....	Fair.
Base		27. 140	51	36	27. 090	37	34	71	N.	4	.08	....	Stratus ...	2-4	0	0	.....	.....	.....	Fair.
Summit	12 0 mid-	23. 580	52	22	23. 536	22	21	85	W.	70	12. 50	....	0	0	Stratus ...	1-4	W.	.....	.....	.....	Fair.
Base ..	night.	27. 15e	53	36	27. 08[illegible]	36	34	80	N.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.

Meteorological record for May 5, 1872.

Summit	1 0 a. m.	23. 578	52	22	23. 534	22	21	85	W.	48	11. 52	....	0	0	Stratus ...	2-4	W.	.....	.....	.....	Fair.
Base ...		27. 140	52	38	27. 073	38	34	63	N.	2	.02	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	2 0 a. m.	23. 567	50	22	23. 527	22	21	85	W.	56	15. 08	....	0	0	Stratus ...	4-4	W.	.....	.....	.....	Cloudy.
Base ...		27. 125	53	39	27. 056	39	34	55	N.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	3 0 a. m.	23. 558	50	22	23. 518	22	21	85	W.	62	19. 22	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Threatening.
Base ...		27. 125	52	38	27. 058	38	35	72	N. W.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	4 0 a. m.	23. 550	47	22	23. 516	22	21	85	W.	66	21. 78	....	Nimbus ...	4-4	Hidden ...	....	.....	3 45 a.m.	.....	.....	Light snow.
Base ...		27. 130	51	37	27. 066	37	34	71	N. W.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	5 0 a. m.	23. 540	45	22	23. 510	22	21	85	W.	60	18. 00	....	Nimbus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base ...		27. 130	50	37	27. 068	37	34	71	W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	6 0 a. m.	23. 550	43	22	23. 524	22	21	85	W.	64	20. 48	....	Nimbus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base ...		27. 130	51	37	27. 066	37	34	71	N. W.	2	.04	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	7 0 a. m.	23. 578	43	22	23. 552	22	21	85	W.	58	16. 82	....	Nimbus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base ...		27. 145	50	34	27. 083	34	34	100	W.	4	.08	....	Nimbus ...	4-4	Hidden ...	....	.....	6 15 a. m.	.....	.....	Light snow.
Summit	7 57 a. m.	23. 573	44	22	23. 547	22	21	85	W.	60	18 00	....	Nimbus ...	4-4	Hidden ...	....	.....	.....	.....	.09	Light snow.
Base ...		27. 165	38	33. 5	27. 084	33. 5	33. 5	100	Calm.	0	.00	....	Nimbus ...	4-4	Hidden ...	....	.....	.....	.....	.18	Heavy snow.
Summit	9 0 a. m.	23. 605	62	22	23. 540	22	21	85	W.	50	12. 50	....	Nimbus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base ...		27. 178	57. 5	34. 5	27. 098	34	34	100	N. W.	4	.08	....	Dense fog.	....	Hidden ...	....	.....	8 45 a.m.	.....	.....	Fogy.
Summit	10 0 a. m.	23. 625	58	23	23. 568	23	22	86	W.	41	8. 40	....	Nimbus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base ...		27. 193	57	36	27. 114	36	35	90	N. W.	6	.18	....	Fog	....	Hidden ...	....	.....	.....	.....	.....	Foggy.
Summit	11 0 a. m.	23. 623	57	23	23. 568	23	22	86	W.	36	6. 48	....	Stratus ...	4-4	Hidden ...	....	.....	10 20 a.m.	.....	.04	Cloudy.
Base ...		27. 201	57	39	27. 122	39	38	91	W.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	10 45 a.m.	.....	.....	Cloudy.
Summit	12 0 m ..	23. 645	55	23	23. 594	23	22	86	W.	30	4. 50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	12 0 m..	.....	Cloudy.
Base ...		27. 222	57	40	27. 143	40	38	82	N. W.	6	.18	....	Stratus ...	3-4	0	0	0	.....	.....	.....	Clearing.
Summit	1 0 p. m.	23. 660	61	23	23. 597	23	22	86	W.	20	2. 00	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Clearing.
Base ...		27. 236	57	42	27. 157	42	39	74	N. W.	6	.18	....	Stratus ...	3-4	0	0	0	.....	.....	.....	Clearing.
Summit	2 0 p. m.	23. 704	61	23	23. 640	23	22	86	W.	18	1. 62	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Clearing.
Base ...		27. 251	59	44	27. 166	44	39	60	N. W.	10	.50	....	Stratus ...	1-4	Cumulus..	2-4	N. W.	.....	.....	.....	Clearing.
Summit	3 0 p. m.	23. 718	56	23	23. 665	23	22	86	W.	22	2. 42	....	0	0	Cumulus..	3-4	W.	.....	.....	.....	Fair.
Base ...		27. 266	60	44	27. 179	44	39	60	N. W.	8	.32	....	Stratus ...	1-4	Cumulus..	2-4	N. W.	.....	.....	.....	Clearing.
Summit	4 0 p. m.	23. 715	56	23	23. 662	23	22	86	W.	44	9. 68	....	0	0	Cumulus..	3-4	W.	.....	.....	.....	Fair.
Base ...		27. 287	63	45	27. 192	45	39	53	N. W.	8	.32	....	0	0	Cumulus..	2-4	N. W.	.....	.....	.....	Fair.
Summit	4 57 p. m.	23. 740	56	23	23. 687	23	21	73	W.	28	3. 92	....	0	0	Cumulus..	2-4	W.	.....	.....	.05	Fair.
Base ...		27. 300	65	41	27. 200	41	36	57	N. W.	8	.32	....	0	0	Cumulus..	2-4	N. W.	.....	.....	.....	Fair.
Summit	6 0 p. m.	23. 730	53	22	23. 683	22	20	72	W.	36	6. 48	....	0	0	Cumulus..	2-4	W.	.....	.....	.....	Fair.
Base ...		27. 320	62	41	27. 228	41	35	57	N. W.	8	.32	....	0	0	Cumulus..	1-4	N. W.	.....	.....	.....	Fair.
Summit	7 0 p. m.	23. 745	52	22	23. 701	22	20	72	N. W.	40	8. 00	....	0	0	Cumulus..	1-4	W.	.....	.....	.....	Fair.
Base ...		27. 330	57	37	27. 250	37	33	71	N. W.	4	.08	....	Stratus ...	1-4	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
Summit	8 0 p. m.	23. 768	53	22	23. 720	22	19	59	N. W.	37	6. 84	....	Hazy	....	Cumulus..	1-4	W.	.....	.....	.....	Fair.
Base ...		27. 350	53	35	27. 280	35	30	54	N. W.	8	.32	....	Stratus ...	1-4	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
Summit	9 0 p. m.	23. 800	53	21	23. 752	21	18	58	N. W.	24	2. 88	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base ...		27. 370	54	31	27. 297	32	28	59	N.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.

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Meteorological record for May 5, 1872—Continued.

(Hourly observations.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM.		Corrected barometer.	HYGROM.		WIND.				LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Remarks.
			Attached.	Exposed.		Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from—)	Commenced.	Ended.		
Summit	10 0 p. m.	23.818	52	21	23.773	21	18	58	N. W.	26	3.38	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base		27.390	52	29	27.322	29	27	78	N.	4	.02	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	11 22 p. m.	23.824	53	20	23.776	20	17	55	N. W.	50	12.50	....	0	0	0	0	0	.....	.....	.....	Clear.
Base		27.417	50	27	27.354	27	26	88	N.	1	.01	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	12 0 midnight.	23.810	53	20	23.767	20	17	55	N.	48	11.52	....	0	0	0	0	0	.....	.....	.....	Clear.
Base		27.415	48	27	27.357	27	25	76	N.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.

Meteorological record for May 6, 1873.

Summit	1 0 a. m.	23.800	48	20	23.763	20	18	70	N.	54	14.58	....	0	0	0	0	0	.....	.....	.....	Clear.
Base		27.410	47	27	27.354	27	24	64.4	N.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	2 0 a. m.	23.808	52	19	23.763	19	17	69	N.	50	12.50	....	0	0	0	0	0	.....	.....	.....	Clear.
Base		27.415	49	26	27.355	26	23	63	N.	2	.02	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	3 0 a. m.	23.826	54	19	23.776	19	17	69	N.	58	16.82	....	0	0	0	0	0	.....	.....	.....	Clear.
Base		27.430	47	25	27.374	25	22	62	N.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	4 0 a. m.	23.825	53	19	23.777	19	17	69	N.	52	13.52	....	0	0	0	0	0	.....	.....	.....	Clear.
Base		27.433	42	24	27.390	24	22	74	N.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	5 0 a. m.	23.850	51	19	23.807	19	17	69	N.	48	11.52	....	0	0	0	0	0	.....	.....	.....	Clear.
Base		27.435	40	23	27.397	23	21	73	N.	8	.32	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	6 0 a. m.	23.840	43	19	23.814	19	17	69	N.	50	12.50	....	0	0	0	0	0	.....	.....	.....	Clear.
Base		27.465	43	24	27.419	24	21	61	N.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	7 0 a. m.	23.850	43	20	23.824	20	18	70	N.	48	11.52	....	Hazy	....	Haze	....	.....	.....	.....	.....	Clear.
Base		27.488	44	30	27.440	30	25	47	N.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	7 57 a. m.	23.882	43	21	23.836	21	19	71	N.	50	12.50	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base		27.500	49	34	27.449	34	28	43	N. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	9 0 a. m.	23.912	57	21	23.856	21	19	71	N.	55	15.12	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base		27.563	58	35	27.455	35	29	45	N. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	10 0 a. m.	23.930	54	22	23.886	22	20	72	N.	44	11.52	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base		27.536	55	37	27.481	36	32	45	W.	8	.32	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	11 0 a. m.	23.924	51	21	23.885	22	20	72	N.	44	9.68	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base		27.527	51	40	27.469	39	32	51	W.	6	.18	....	0	0	0	0	0	.....	.....	.....	Clear.

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Summit	12	0 m.	23.910	48	21	23.863	22	20	72	N.	55	15.12	....	Hazy.....	....	0	0	0	.....	.....	.....	Clear.
Base...			27.518	53	43	27.448	43	33	27	W.	8	.32	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	1	0 p. m.	23.920	50	22	23.879	22	20	72	N.	42	11.62	....	Hazy.....	....	0	0	0	.....	.....	.....	Clear.
Base...			27.513	55	44	27.438	44	35	30	S. W.	8	.32	...	0	0	0	0	0	.....	.....	.....	Clear.
Summit	2	0 p. m.	23.935	56	22	23.901	22	20	72	W.	58	10.82	...	Hazy.....	....	0	0	0	.....	.....	.....	Clear.
Base...			27.511	57	45	27.431	45	35	24	W.	10	.50	...	0	0	0	0	0	.....	.....	.....	Clear.
Summit	3	0 p. m.	23.954	60	21	23.891	21	19	71	W.	50	12.50	....	Hazy.....	....	0	0	0	.....	.....	.....	Clear.
Base...			27.519	60	45	27.432	45	37	39	W.	12	.72	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	4	0 p. m.	23.920	56	21	23.866	21	19	71	W.	44	9.68	....	Hazy.....	....	0	0	0	.....	.....	.....	Clear.
Base...			27.518	62	45	27.426	45	37	39	S. W.	10	.50	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	4	57 p. m.	23.915	58	21	23.870	21	19	71	W.	58	16.82	....	Hazy.....	....	0	0	0	.....	.....	.....	Clear.
Base...			27.530	65	44	27.430	44	36	37	N.	6	.32	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	6	0 p. m.	23.940	53	21	23.892	21	19	71	W.	46	10.58	....	Dense haze	....	0	0	0	.....	.....	.....	Fair.
Base...			27.527	62	42	27.435	42	35	42	S.	8	.32	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	7	0 p. m.	23.950	54	21	23.900	21	19	71	W.	36	6.48	....	Dense haze	....	0	0	0	.....	.....	.....	Fair.
Base...			27.520	59	39	27.435	39	34	55	N. W.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	8	0 p. m.	23.935	51	20	23.892	20	18	70	W.	30	4.50	....	Dense haze	....	0	0	0	.....	.....	.....	Fair.
Base...			27.538	55	33	27.463	33	30	70	S. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	9	0 p. m.	23.940	49	20	23.901	20	18	70	W.	47	11.04	...	Dense haze	....	0	0	0	.....	.....	.....	Fair.
Base...			27.550	57	32	27.470	32	29	69	S. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	10	0 p. m.	23.953	50	20	23.912	20	18	70	W.	48	11.52	....	Dense haze	....	0	0	0	.....	.....	.....	Fair.
Base...			27.560	58	31	27.477	31	29	79	S. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	11	22 p. m.	23.958	51	20	23.915	20	18	70	W.	60	18.00	....	Hazy.....	....	0	0	0	.....	.....	.....	Fair.
Base...			27.559	52	31	27.491	31	28	68.5	S. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	12	0 mid-	23.953	53	20	23.905	20	18	70	W.	56	15.68	....	Hazy.....	....	0	0	0	.....	.....	.....	Fair.
Base...		night.	27.560	51	31	27.495	31	28	68.5	S. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.

Meteorological record for May 7, 1873.

Summit	1	0 a. m.	23.999	56	20	23.945	20	18	70	W.	50	12.50	....	Haze	....	0	0	0	.....	.....	.....	Fair.
Base...			27.550	51	31	27.385	31	28	68.5	S. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	2	0 a. m.	24.010	55	20	23.958	20	18	70	W.	42	8.62	....	Hazy	....	0	0	0	.....	.....	.....	Fair.
Base...			27.555	52	29	27.487	29	26	66.5	S. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	3	0 a. m.	24.013	55	19	23.961	19	17	69	W.	40	8.00	....	Hazy	....	0	0	0	.....	.....	.....	Fair.
Base...			27.555	53	29	27.485	29	26	66.5	S. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	4	0 a. m.	24.022	57	19	23.966	19	17	69	W.	36	6.48	....	Hazy	....	0	0	0	.....	.....	.....	Fair.
Base...			27.563	52	28	27.495	28	26	77	S. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	5	0 a. m.	24.038	56	19	23.984	19	17	69	W.	37	6.84	....	Haze	....	0	0	0	.....	.....	.....	Fair.
Base...			27.564	48	28	27.506	28	25	65.5	E.	4	.08	....	0	0	Cirrus.....	1-4	Calm..	.....	.....	.....	Clear.
Summit	6	0 a. m.	24.050	52	19	24.003	19	17	69	W.	30	4.50	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base...			27.578	46	28	27.525	28	25	65.5	E.	4	.08	....	0	0	Cirrus.....	1-4	Calm..	.....	.....	.....	Clear.
Summit	7	0 a. m.	24.070	48	21	24.033	21	19	71	N. W.	28	3.92	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base...			27.600	52	34	27.532	34	32	79	S. E.	2	.02	....	0	0	Cirrus.....	1-4	0	.....	.....	.....	Clear.
Summit	7	57 a. m.	24.060	47	22	24.025	22	20	72	N.	14	.98	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base...			27.615	59	39	27.530	39	32	38	N. W.	4	.08	....	0	0	Cirrus.....	1-4	0	.....	.....	.....	Clear.
Summit	9	0 a. m.	24.090	52	23	24.047	23	21	73	N.	12	.72	....	Hazy	....	Cirro-strat.	1-4	0	.....	.....	.....	Clear.
Base...			27.622	60	42	27.535	42	33	27	W.	4	.08	....	0	0	Cirrus.....	1-4	W.	.....	.....	.....	Clear.

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Meteorological record for May 7, 1873—Continued.

(Hourly observation.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,998.3 feet. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	*Remarks.
Summit	10 0 a. m.	24.104	53	24	24.056	24	22	74	N.	10	.50	....	Hazy	....	Cirro-strat.	1-4	0	.....	.....	.....	Fair.
Base		27.624	60	43	27.587	44	35	30	S. W.	4	.08	....	0	0	Cirrus	1-8	N. W.	.....	.....	.....	Clear.
Summit	11 0 a. m	24.104	51	28	24.061	28	26	77	N.	12	.72	....	Hazy	....	Cirro-strat.	1-4	0	.....	.....	.....	Clear.
Base		27.628	64	46	27.536	46	37	33	W.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	12 0 m ..	24.134	55	29	24.092	29	27	78	W.	8	.32	....	Hazy	....	Cirro-strat.	1-4	0	.....	.....	.....	Clear.
Base		27.619	60	48	27.582	48	33	29	S. W.	4	.08	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Clear.
Summit	1 0 p. m.	24.130	55	32	24.078	32	30	79	W.	7	.24	....	Hazy	....	Cirro-strat.	1-4	0	.....	.....	.....	Clear.
Base		27.610	62	50	27.518	50	39	26	S. E.	6	.18	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Clear.
Summit	2 0 p. m.	24.128	54	30	24.078	30	28	78	W.	10	.50	....	Hazy	....	Cirro-strat.	1-4	0	.....	.....	.....	Clear.
Base		27.609	67	53	27.504	53	39	18	N. W.	4	.08	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Clear.
Summit	3 0 p. m.	24.140	59	30	24.080	30	23	78	W.	4	.08	....	Hazy	....	Cirro-strat.	1-4	0	.....	.....	.....	Clear.
Base		27.609	71	54	27.495	54	43	26	E.	4	.08	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Clear.
Summit	4 0 p. m.	24.140	50	30	24.080	30	28	78	W.	5	.12	....	Hazy	....	Cirro-strat.	1-4	0	.....	.....	.....	Fair.
Base		27.615	73	54	27.496	54	42	26	S.	4	.08	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Clear.
Summit	4 57 p. m.	24.130	57	29	24.074	29	27	78	W.	8	.32	....	Hazy	....	Cirro-strat.	1-4	0	.....	.....	.....	Fair.
Base		27.610	73	52	27.491	52	40	23	S. W.	4	.08	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Clear.
Summit	6 0 p. m.	24.130	59	23	24.070	23	26	77	W.	2	.02	....	Hazy	....	Cirro-strat.	1-4	0	.....	.....	.....	Fair.
Base		27.608	69	50	27.498	50	39	26	N. W.	4	.08	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Clear.
Summit	7 0 p. m.	24.135	61	28	24.070	28	28	77	0	0	0	....	Hazy	....	Cirro-strat.	1-4	0	.....	.....	.....	Fair.
Base		27.600	61	41	27.510	41	35	49	N.	4	.08	....	Stratus	1-4	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
Summit	8 0 p. m.	24.145	65	27	24.072	27	25	77	N.	18	1.62	....	Hazy	....	0	0	0	.....	.....	.....	Clear, (aurora.)
Base		27.600	61	38	27.510	38	33	54	N.	4	.08	....	Stratus	1-4	Cirrus	1-4	Calm	.....	.....	.....	Fair.
Summit	9 0 p. m.	24.160	66	27	24.085	27	25	77	N.	24	2.88	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base		27.600	59	35	27.515	35	32	70	N.	4	.08	....	0	0	Cirrus	1-4	Calm	.....	.....	.....	Clear.
Summit	10 0 p. m.	24.160	65	27	24.087	27	25	77	N.	30	4.50	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base		27.600	55	35	27.525	35	32	70	N.	4	.08	....	0	0	Cirrus	1-4	Calm	.....	.....	.....	Clear.
Summit	11 22 p. m.	24.162	60	26	24.099	26	21	76	N.	20	2.00	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base		27.600	55	33	27.525	33	31	70	N.	4	.08	....	Stratus	1-4	0	0	0	.....	.....	.....	Clear.
Summit	12 0 mid-night.	24.162	61	26	24.097	26	24	76	N.	25	3.38	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base		27.598	55	34	27.523	34	32	79	N.	4	.08	....	Stratus	1-4	0	0	0	.....	.....	.....	Clear.

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Summit	1 0 a. m.	24. 145	64	25	24. 074	25	23	76	N.	22	2. 42	....	Hazy	....	Cirro-strat	2-4	N.	.....	.....	.....	.....	Fair.
Base . .		27. 599	57	35	27. 512	35	30	54	N.	4	.08	....	0	0	Cirrus	1-4	N.	.....	.....	.....	.....	Clear.
Summit	2 0 a. m.	24. 160	67	25	24. 082	25	23	76	N.	12	.72	....	0	0	Cirro-strat	2-4	N.	.....	.....	.....	.....	Fair.
Base . .		27. 595	53	35	27. 525	35	30	54	N.	4	.08	....	0	0	Cirrus ...	1-4	N.	.....	.....	.....	.....	Clear.
Summit	3 0 a. m.	24. 153	65	25	24. 082	25	23	76	N.	2	.02	....	Hazy	....	Cirro-strat	1-4	N.	.....	.....	.....	.....	Fair.
Base . .		27. 595	53	36	27. 525	36	31	55	N.	4	.02	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
Summit	4 0 a. m.	24. 155	65	25	24. 082	25	23	76	0	0	0	....	Hazy	....	Cirro-strat	1-4	N.	.....	.....	.....	.....	Fair.
Base . .		27. 595	53	33	27. 546	33	29	69	N.	4	.08	....	0	0	Hazy	0	0	.....	.....	.....	.....	Clear.
Summit	5 0 a. m.	24. 180	70	26	24. 096	26	24	76	0	0	0	....	Hazy	....	Cirro-strat	2-4	0	.....	.....	.....	.....	Fair.
Base . .		27. 605	50	33	27. 542	33	29	69	N.	4	.08	....	Hazy	0	Cirrus ...	2-4	W.	.....	.....	.....	.....	Fair.
Summit	6 0 a. m.	24. 176	67	27	24. 098	27	25	77	0	0	0	....	Hazy	....	Cirro-strat	2-4	0	.....	.....	.....	.....	Fair.
Base . .		27. 610	53	33	27. 540	33	31	85	N.	4	.08	....	0	0	Cirrus	1-4	W.	.....	.....	.....	.....	Clear.
Summit	7 0 a. m.	24. 181	64	27	24. 110	27	25	77	0	0	0	....	Hazy	....	Cirro-strat	2-4	0	.....	.....	.....	.....	Fair.
Base . .		27. 620	54	39	27. 547	39	32	70	N.	2	.02	....	0	0	Cirrus	1-4	W.	.....	.....	.....	.....	Fair.
Summit	7 57 a. m.	24. 170	58	30	24. 112	30	28	78	0	0	0	....	Hazy	....	Cirro-strat	2-4	0	.....	.....	.....	.....	Fair.
Base . .		27. 620	57	45	27. 545	45	37	39	N.	2	.02	....	Hazy	....	Cirrus	2-4	Calm.	.....	.....	.....	.....	Fair.
Summit	9 0 a. m.	24. 170	61	32	24. 105	32	30	79	N.	2	.02	....	Hazy	....	Cirro-strat	2-4	N. W.	.....	.....	.....	.....	Fair.
Base . .		27. 632	61	49	27. 542	49	41	44	N. W.	2	.02	....	0	0	Cirrus	3-4	N. W.	.....	.....	.....	.....	Fair.
Summit	10 0 a. m.	24. 160	56	34	24. 106	34	32	79	N.	4	.08	....	Hazy	....	Cirro-strat	2-4	N. W.	.....	.....	.....	.....	Fair.
Base . .		27. 620	60	50	27. 533	50	42	45	W.	4	.08	....	0	0	Cirrus	3-4	N. W.	.....	.....	.....	.....	Fair.
Summit	11 0 a. m.	24. 164	54	36	24. 114	36	34	80	N.	4	.08	....	Hazy	....	Cirro-strat	2-4	N. W.	.....	.....	.....	.....	Fair.
Base . .		27. 613	61	53	27. 523	53	43	36	N. W.	4	.08	....	0	0	Cirrus	2-4	N. W.	.....	.....	.....	.....	Fair.
Summit	12 0 m...	24. 158	57	36	24. 102	36	34	80	N.	6	.18	....	Hazy	....	Cirro-strat	2-4	N. W.	.....	.....	.....	.....	Fair.
Base . .		27. 600	63	55	27. 505	55	45	39	W.	4	.08	....	0	0	Cirrus	3-4	N. W.	.....	.....	.....	.....	Fair.
Summit	1 0 p. m.	24. 154	61	35	24. 089	35	33	80	N.	14	.98	....	Hazy	....	Cirro-strat	2-4	N. W.	.....	.....	.....	.....	Fair.
Base . .		27. 591	65	57	27. 491	56	46	40	W.	4	.08	....	Hazy	....	Cirrus	2-4	N. W.	.....	.....	.....	.....	Fair.
Summit	2 0 p. m.	24. 143	60	36	24. 080	36	34	80	N.	6	.18	....	Hazy	....	Cirro-cum	2-4	N. W.	.....	.....	.....	.....	Fair.
Base . .		27. 583	64	57	27. 486	57	46	36	S. E.	8	.32	....	Hazy	....	Cirrus	3-4	N. W.	.....	.....	.....	.....	Fair.
Summit	3 0 p. m.	24. 130	58	35	24. 072	35	33	80	N.	8	.32	....	Hazy	....	Cirro-cum.	2-4	N. W.	.....	.....	.....	.....	Fair.
Base . .		27. 576	67	58	27. 471	58	47	37	S. E.	6	.18	....	Hazy	....	Cirrus	3-4	N. W.	.....	.....	.....	.....	Fair.
Summit	4 0 p. m.	24. 105	58	35	24. 047	35	33	80	N. W.	5	.12	....	Hazy	....	Cirro-strat	2-4	N. W.	.....	.....	.....	.....	Fair.
Base...		27. 562	68	56	27. 455	56	45	35	S. E.	4	.08	....	Hazy	....	Cirrus	3-4	N. W.	.....	.....	.....	.....	Fair.
Summit	4 57 p. m.	24. 115	57	34	24. 059	34	32	79	0	0	0	....	Hazy	....	Cirro-strat	2-4	N. W.	.....	.....	.....	.....	Fair.
Base...		27. 559	67	53	27. 454	53	43	36	S. E.	8	.32	....	Stratus ...	1-4	Cirrus	2-4	N. W.	.....	.....	.....	.....	Fair.
Summit	6 0 p. m.	24. 100	57	34	24. 044	34	32	79	N. W.	16	1. 28	....	Hazy	....	Cirro-strat	2-4	N. W.	.....	.....	.....	.....	Fair.
Base...		27. 557	66	50	27. 455	50	41	39	S. E.	4	.08	....	Stratus ...	1-4	Cirrus	2-4	N. W.	.....	.....	.....	.....	Fair.
Summit	7 0 p. m.	24. 095	53	32	24. 047	32	31	89	N. W.	22	2. 42	....	Hazy	....	Cirro-strat	3-4	N. W.	.....	.....	.....	.....	Fair.
Base ..		27. 558	53	40	27. 488	40	37	73	S. E.	4	.08	....	Stratus ...	1-4	Cirrus	2-4	N. W.	.....	.....	.....	.....	Fair.
Summit	8 0 p. m.	24. 110	63	33	24. 047	33	32	89	N.	24	2. 88	....	Hazy	....	Cirro-strat	1-4	N. W.	.....	.....	.....	.....	Fair.
Base...		27. 558	59	38	27. 473	38	35	72	S. E.	4	.08	....	Stratus ...	1-4	Cirrus	2-4	N. W.	.....	.....	.....	.....	Fair.
Summit	9 0 p. m.	24. 118	63	32	24. 049	32	31	89	N.	20	2. 00	....	Hazy	....	Cirro-strat	1-4	N. W.	.....	.....	.....	.....	Fair.
Base...		27. 560	58	37	27. 447	37	34	71	S. E.	4	.08	....	Stratus ...	1 4	Cirrus	1-4	Calm...	.....	.....	.....	.....	Fair.
Summit	10 0 p. m.	24. 100	62	31	24. 033	31	30	89	N.	28	3. 38	....	Hazy	....	Cirro-strat	1-4	N. W.	.....	.....	.....	.....	Fair.
Base...		27. 550	57	35	27. 470	35	33	80	S. E.	4	.08	....	0	0	Cirrus	1-4	Calm ..	.....	.....	.....	.....	Clear.
Summit	11 22 p. m.	24. 070	58	30	24. 012	30	29	89	N.	36	6. 48	....	Hazy	....	0	0	0	.....	.....	.....	.....	Clear.
Base...		27. 540	54	33	27. 467	33	32	89	S. E.	4	.08	....	0	0	Cirrus	1-4	Calm ..	.....	.....	.....	.....	Clear.
Summit	12 0 mid-	24. 060	60	30	23. 997	30	29	89	N.	22	2. 42	....	Hazy	....	0	0	0	.....	.....	.....	.....	Clear.
Base...	night.	27. 599	54	32	27. 456	32	31	90	S. E.	4	.08	....	0	0	Cirrus	1-4	Calm ..	.....	.....	.....	.....	Clear.

42 W

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Meteorological record for May 9, 1873.

(Hourly observations.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from)—	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
Summit	1 0 a. m.	24.048	67	28	23.970	28	27	88	S. E.	49	8.00	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
Base		27.510	52	33	27.442	33	31	80	S. E.	4	.08	....	0	0	Cirrus	1-4	Calm.	.....	.....	.....	Clear.
Summit	2 0 a. m.	24.035	63	27	23.966	27	26	88	S. E.	37	6.84	....	Hazy	....	Cirro-strat	3-4	S. E.	.....	.....	.....	Fair.
Base		27.490	50	35	27.427	35	32	70	S. E.	4	.08	....	0	0	Cirrus	2-4	N.	.....	.....	.....	Fair.
Summit	3 0 a. m.	24.030	63	26	23.961	26	25	88	S. E.	35	6.12	....	Stratus	1-4	Cirrus	1-4	S. E.	.....	.....	.....	Fair.
Base		27.485	50	39	27.422	39	33	46	S. E.	4	.08	....	0	0	Cirrus	1-4	N.	.....	.....	.....	Clear.
Summit	4 0 a. m.	24.013	60	25	23.950	25	24	88	S. E.	29	4.20	....	0	0	Cirrus	2-4	S. E.	.....	.....	.....	Fair.
Base		27.477	51	40	27.412	40	34	48	S. E.	8	.32	....	0	0	Cirrus	1-4	W.	.....	.....	.....	Clear.
Summit	5 0 a. m.	24.000	58	25	23.942	25	23	74	S. E.	40	8.00	....	Stratus	1-4	Cirro-strat	2-4	S. E.	.....	.....	.....	Fair.
Base		27.470	52	41	27.402	41	34	41	N. E.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	6 0 a. m.	24.003	60	24	23.94[illegible]	24	22	74	S. E.	36	6.48	....	Stratus	2-4	Cirrus	1-4	S. E.	.....	.....	.....	Fair.
Base		27.470	52	41	27.402	41	34	44	S. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	7 0 a. m.	24.020	63	24	23.951	24	22	74	S. E.	42	8.82	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	Fair.
Base		27.485	56	44	27.407	44	34	23	S. E.	8	.32	....	Stratus	1-4	Cirrus	2-4	Calm.	.....	.....	.....	Fair.
Summit	7 57 a. m.	24.101	57	26	23.954	26	24	76	S. E.	36	6.48	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	Fair.
Base		27.480	55	45	27.403	45	36	31	S. E.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	9 0 a. m.	24.000	61	27	23.935	27	26	88	E.	41	8 40	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	Fair.
Base		27.480	56	46	27.413	47	38	34	S. E.	8	.32	....	Stratus	2-4	Cirrus	2-4	Calm.	.....	.....	.....	Cloudy.
Summit	10 0 a. m.	24.010	59	27	23.950	27	26	88	S. E.	46	10.58	....	Stratus	2-4	Hidden	....	.....	.....	.....	.....	Fair.
Base		27.488	55	46	27.413	46	38	40	E.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	11 0 a. m.	24.030	67	28	23.952	28	27	88	S. E.	48	11.52	....	Stratus	2-4	Hidden	....	.....	.....	.....	.....	Fair.
Base		27.489	55	48	27.414	49	39	31	N. W.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	12 0 m.	24.040	69	29	23.958	29	28	89	S. E.	40	8.00	....	Stratus	2-4	Hidden	....	.....	.....	.....	.....	Fair.
Base		27.489	56	49	27.411	50	39	26	W.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	1 0 p. m.	24.030	60	29	23.967	29	28	89	S. E.	30	4.50	....	Hazy	....	Stratus	4-4	S. E.	.....	.....	.....	Fair.
Base		27.487	58	51	27.404	51	40	28	S. E.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	2 0 p. m.	24.030	60	29	23.967	29	28	89	S. E.	36	6.48	....	Hazy	....	Stratus	4-4	S. E.	.....	.....	.....	Fair.
Base		27.501	65	50	27.401	50	40	22	S. E.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	3 0 p. m.	24.028	72	28	23.934	28	27	88	E.	48	11.52	....	Hazy	....	Stratus	4-4	S. E.	.....	.....	.....	Cloudy.
Base		27.485	61	49	27.392	49	39	31	E.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	4 0 p. m.	24.000	69	27	23.933	27	26	84	E.	44	9.[illegible]	....	Hazy	....	Stratus	4-4	S. E.	.....	.....	.....	Cloudy.
Base		27.480	60	47	27.392	47	38	34	E.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	4 57 p. m.	24.070	64	27	23.999	27	26	84	E.	42	11.[illegible]	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	Cloudy.
[illegible]		27.490	59	47	27.397	47	38	34	E.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.

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Summit			23. 855 58	30	23. 807 39	29	89	E.	50	12. 50	....	Stratus	3-4	Hidden	....	....	.....	.....	.....	
Base			27. 429 56	47	27. 351 47	39	41	S. E.	7	.32	....	Stratus	3-4	Hidden	....	....	.....	.....	.....	
Summit	7	0 p.m.	23. 868 59	29	23. 168 29	28	89	E.	40	7. 00	....	Nimbus	4-4	Hidden	....	....	.....	.....	.....	Cloudy.
Base			27. 410 57	43	27. 330 43	39	67	S. E.	16	1. 28	....	Nimbus	4-4	Hidden	....	....	.....	6.15 p. m	.....	Cloudy.
Summit	8	0 p.m.	23. 900 58	29	23. 802 29	28	89	E.	28	3. 92	....	Nimbus	4-4	Hidden	....	....	.....	6.10 p. m	.....	Sleeting.
Base			27. 440 60	45	27. 353 46	39	47	S. E.	12	.72	....	Nimbus	4-4	Hidden	....	....	.....	.....	.....	Light rain.
Summit	9	0 p.m.	23. 950 60	28	23. 883 28	27	88	E.	36	7. 22	....	Nimbus	4-4	Hidden	....	....	.....	.....	.....	Sleeting.
Base			27. 420 57	45	27. 340 45	38	46	E.	16	1. 28	....	Stratus	2-4	Cirrus	2-4	C.	.....	9.00 p. m	.....	Light rain.
Summit	10	0 p.m.	23. 936 61	28	23. 871 28	27	88	E.	43	9. 24	....	Nimbus	4-4	Hidden	....	....	.....	.....	.....	Sleeting.
Base			27. 421 57	44	27. 341 44	40	64	E.	16	1. 28	....	Nimbus	4-4	Hidden	....	....	.....	.....	.....	Cloudy.
Summit	11	22 p.m.	23. 935 62	27	23. 868 27	26	88	S. E.	46	10. 58	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Light rain.
Base			27. 400 57	45	27. 320 45	38	46	S. E.	16	1. 28	....	Nimbus	2-4	Cirrus	2-4	S. W.	.....	10.30 p. m	.05	Cloudy.
Summit	12	0 m	23. 930 60	27	23. 867 27	26	88	S. E.	48	11. 52	....	Stratus	4-4	Hidden	....	....	.....	.....	.11	Light rain.
Base			27. 392 56	46	27. 314 45	39	53	S. E.	12	.72	....	Stratus	2-4	Cirrus	2-4	C.	11.50 p. m	12.00 m.	.....	Cloudy.
																				Threatening.

Meteorological record for May 10, 1873.

Summit	1	0 a. m.	23. 900 57	30	23. 844 30	29	89	S. E.	54	14. 58	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Threatening.
Base			27. 370 57	44	27. 290 44	41	75. 6	E.	20	2. 00	....	Stratus	2-4	Hazy	0	0	.....	.....	.....	Fair.
Summit	2	0 a. m.	23. 880 56	29	23. 826 29	28	89	S. E.	49	12. 00	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Threatening.
Base			27. 350 55	41	27. 275 41	41	83. 3	E.	20	2. 00	....	Nimbus	4-4	Hidden	....	....	.....	1.30 a. m.	.....	Light rain.
Summit	3	0 a. m.	23. 879 57	28	23. 823 28	27	88	S. E.	53	14. 04	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Threatening.
Base			27. 313 55	42	27. 238 42	40	82. 9	E.	20	2. 00	....	Nimbus	4-4	Hidden	....	....	.....	.....	.....	Light rain.
Summit	4	0 a. m.	23. 843 55	28	23. 791 28	27	88	S.	50	12. 50	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Threatening.
Base			27. 310 55	42	27. 235 42	40	82. 9	S. E.	20	2. 00	....	Nimbus	4-4	Hidden	....	....	.....	.....	.....	Light rain.
Summit	5	0 a. m.	23. 855 53	29	23. 807 29	28	89	S.	47	11. 04	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Threatening.
Base			27. 334 58	41	27. 251 41	40	91. 2	S. E.	24	2. 88	....	Nimbus	4-4	Hidden	....	....	.....	.....	.....	Light rain.
Summit	6	0 a. m.	23. 840 53	31	23. 792 31	30	89	S.	46	10. 58	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Threatening.
Base			27. 319 57	42	27. 239 42	41	91. 4	S. E.	24	2. 88	....	Nimbus	4-4	Hidden	....	....	.....	.....	.....	Light rain.
Summit	7	0 a. m.	23. 838 54	32	23. 788 32	31	89	S. E.	52	13. 52	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Threatening.
Base			27. 325 57	44	27. 245 44	43. 5	95. 8	S. E.	20	2. 00	....	Nimbus	4-4	Hidden	....	....	.....	.....	.....	Light rain.
Summit	7	57 a. m.	23. 838 57	33	23. 782 33	32	89	S.	58	16. 82	....	Nimbus	4-4	Hidden	....	....	.....	7.30 a. m.	.06	Heavy rain.
Base			27. 305 57	46	27. 225 46	45	92. 1	E.	20	2. 00	....	Nimbus	4-4	Hidden	....	....	.....	.....	.29	Light rain.
Summit	9	0 a. m.	23. 835 57	33	23. 779 33	32	89	S.	56	15. 68	....	Stratus	4-4	Hidden	....	....	.....	8.22 a. m.	.01	Threatening.
Base			27. 302 58	48	27. 219 49	48	92. 6	E.	20	2. 00	....	Nimbus	4-4	Hidden	....	....	.....	.....	.....	Light rain.
Summit	10	0 a. m.	23. 855 61	34	23. 790 34	33	90	S.	60	18. 00	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Threatening.
Base			27. 306 58	50	27. 223 50	47	78. 6	E.	20	2. 00	....	Nimbus	2-4	Cirrus	2-4	W.	.....	.....	.....	Light rain.
Summit	11	0 a. m.	23. 883 64	35	23. 812 35	34	90	S.	30	4. 50	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Threatening.
Base			27. 319 62	53	27. 227 54	50	73. 8	E.	12	.72	....	Stratus	4-4	Hidden	....	....	.....	10.05 a. m.	.....	Cloudy.
Summit	12	0 mid-night.	23. 889 62	37	23. 822 37	36	90	S.	36	6. 48	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Threatening.
Base			27. 318 63	54	27. 223 54	51	80. 2	E.	12	.72	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Cloudy.
Summit	1	0 p.m.	23. 885 62	38	23. 818 38	37	90	S.	32	5. 12	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Threatening.
Base			27. 299 65	57	27. 199 58	54	75. 6	S. E.	12	.72	....	Stratus	2-4	Cirro-cum	2-4	S. W.	.....	.....	.....	Cloudy.
Summit	2	0 p.m.	23. 898 64	38	23. 827 38	37	90	S.	34	5. 78	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Threatening.
Base			27. 309 65	51	27. 209 52	48	72. 7	S.	6	.18	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Cloudy.
Summit	3	0 p.m.	23. 925 68	37	23. 845 37	36	90	S.	20	2. 00	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Threatening.
Base			27. 301 62	48	27. 209 49	47	85. 3	S. W.	2	.02	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Cloudy.
Summit	4	0 p.m.	23. 925 67	36	23. 847 36	35	90	S.	10	.50	....	Stratus	3-4	Hidden	....	....	.....	.....	.....	Clearing.
Base			27. 308 63	52	27. 213 52	50	86. 1	W.	4	.08	....	Stratus	2-4	Cirrus	2-4	S. W.	.....	.....	.....	Clearing.

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Meteorological record for May 10, 1873—Continued.

(Hourly observations.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
Summit	4 57 p. m.	23.915	63	35	23.846	35	34	90	S. W.	14	.98	....	Cumulus..	2-4	0	0	0	.....	.....	.....	Fair.
Base..		27.300	67	51	27.195	51	48.5	82.4	W.	4	.06	....	Stratus ...	1-4	0	0	0	.....	.....	.03	Clear.
Summit	6 0 p. m.	23.908	62	35	23.841	35	34	90	W.	12	.72	....	Stratus ...	4-4	Hidden ...	.....	.....	.....	.....	.....	Cloudy.
Base .		27.321	64	47.5	27.219	47.5	46	88.6	W.	4	.08	....	Stratus ...	3-4	0	0	0	.....	.....	.....	Fair.
Summit	7 0 p. m.	23.900	61	32	23.835	32	31	89	W.	18	1.62	....	Stratus ...	4-4	Hidden ...	.....	.....	.....	.....	.....	Cloudy.
Base ..		27.318	61	42	27.228	42	40.5	87.1	S. E.	4	.06	....	Stratus ...	3-4	0	0	0	.....	.....	.....	Fair.
Summit	8 0 p. m.	23.918	62	32	23.851	32	31	89	N. W.	22	2.42	....	Cumulus..	2-4	0	0	0	.....	.....	.....	Fair.
Base ..		27.322	59	41	27.237	41	39.5	86.7	S. E.	4	.08	....	Stratus ...	4-4	Hidden ...	.....	.....	.....	.....	.....	Cloudy.
Summit	9 0 p. m.	23.950	66	32	23.875	32	31	89	N. W.	8	.32	....	Cumulus..	2-4	0	0	0	.....	.....	.....	Fair.
Base ..		27.328	60	40	27.241	40	39.5	95.4	S. E.	4	.08	....	Stratus ...	4-4	Hidden ...	.....	.....	.....	.....	.....	Cloudy.
Summit	10 0 p. m.	23.965	67	34	23.887	34	33	90	W.	6	.18	....	Cumulus..	2-4	0	0	0	.....	.....	.....	Fair.
Base ..		27.310	59	38	27.225	39	38	97	S. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	11 22 p. m.	23.940	65	33	23.867	33	32	89	W.	4	.08	....	Cumulus .	2-4	0	0	0	.....	.....	.....	Fair.
Base ..		27.310	58	39	27.227	40	39	91	S. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	12 0 mid-night.	23.940	64	33	23.869	33	32	89	0	0	0	....	Cumulus..	2-4	0	0	0	.....	.....	.....	Fair.
Base ..		27.309	57	37	27.229	37	36	90.3	S. E.	4	.08	....	0	0	Cirrus	1-4	0	.....	.....	.....	Clear.

Meteorological record for May 11, 1872.

Summit	1 0 a. m.	23.930	62	33	23.863	33	32	89	0	0	0	....	Cumulus..	2-4	0	0	0	.....	.....	.....	Fair.
Base...		27.300	58	37	27.217	37	36	90.3	S. E.	4	.06	....	0	0	Cirrus	1-4	0	.....	.....	.....	Clear.
Summit	2 0 a. m.	23.920	62	33	23.853	33	32	89	S. W.	18	1.62	....	Cumulus..	2-4	Cirrus	1-4	S.W.	.....	.....	.....	Fair.
Base...		27.300	57	37.5	27.220	37.5	36.5	90.4	S. E.	4	.06	....	0	0	Cirrus	1-4	0	.....	.....	.....	Clear.
Summit	3 0 a. m.	23.910	64	33	23.839	33	32	89	S. W.	14	.98	....	Cumulus..	2-4	0	0	0	.....	.....	.....	Fair.
Base ..		27.290	56	37	27.207	37	36	90.3	S. E.	4	.06	....	0	0	Cirrus	1-4	0	.....	.....	.....	Clear.
Summit	4 0 a. m.	23.878	65	32	23.805	32	31	89	S. W.	24	2.88	....	Cumulus..	2-4	0	0	0	.....	.....	.....	Fair.
Base ..		27.255	56.5	39	27.174	39	38	90.7	N. E.	4	.06	....	0	0	Cirrus	1-4	S.	.....	.....	.....	Clear.
Summit	5 0 a. m.	23.870	59	34	23.810	34	32	79	S. W.	22	2.42	....	Cumulus..	2-4	Cirrus	1-4	W.	.....	.....	.....	Fair.
Base ..		27.240	56	38	27.170	38	37	90.5	N. E.	4	.06	....	0	0	Cirrus	1-4	S.	.....	.....	.....	Fair.
Summit	6 0 a. m.	23.870	58	34	23.816	34	32	79	S. W.	10	1.20	....	Cumulus..	3-4	Cirrus	1-4	S. W.	.....	.....	.....	Fair.
Base ..		27.230	55	40	27.170	40	39	91	W.	4	.06	....	Stratus ..	1-4	Cirrus	2-4	S.	.....	.....	.....	Fair.

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Summit	7	0 a. m.	23. 815	56	34	23. 814	34	92	70	S. W.	26	2. 00	....	Stratus ...	2-4	Stratus ...	2-4	S. W.						Fair.
Base			27. 383	55	41	27. 108	41	40	91. 2	0	0	0	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	
Summit	7	57 a. m.	23. 800	60	34	23. 797	34	33	90	S. W.	24	2. 88	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Cloudy.
Base			27. 245	61	43	27. 157	43	42	91. 6	S.	1	.01	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Cloudy.
Summit	9	0 a. m.	23. 855	65	35	23. 782	35	35	100	S. W.	18	1. 62	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Cloudy.
Base			27. 219	63	48	27. 126	48	47	92. 5	W.	2	.02	....	Stratus ...	1-4	Cirrus	3-4	W.	.....	.....	.....	.....	.....	Cloudy.
Summit	10	0 a. m.	23. 835	66	35	23. 760	35	35	100	S. W.	38	7. 22	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Cloudy.
Base			27. 220	64	52. 5	27. 124	53	50	79. 8	S. E.	4	.08	....	Stratus ...	3-4	Cirrus	1-4	S. W.	.....	.....	.....	.....	.....	Cloudy.
Summit	11	0 a. m.	23. 820	65	36	23. 747	36	36	100	S.	36	6. 48	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Cloudy.
Base			27. 214	64	47	27. 117	48	46	85	W.	6	.18	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Threatening.
Summit	12	0 m ..	23. 788	60	37	23. 725	37	37	100	S.	30	4. 50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	10.11 a. m.	11.16	Blank..	Cloudy.	
Base			27. 191	64	55	27. 095	56	52	74. 7	S. E.	6	.18	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Threatening.
Summit	1	0 p. m.	23. 763	59	37	23. 703	37	37	100	S.	24	2. 88	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Cloudy.
Base			27. 176	64	56	27. 080	57	53	75. 2	E.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Cloudy.
Summit	2	0 p. m.	23. 755	65	38	23. 682	38	38	100	S.	28	3. 92	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Cloudy.
Base			27. 150	65	59	27. 052	59	55	76. 1	S. E.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Cloudy.
Summit	3	0 p. m.	23. 710	64	35	23. 640	35	35	100	S.	36	6. 48	..	Nimbus ..	4-4	Hidden ...	....	.....	.....	2.47 p. m.	.....	.....	Heavy rain.	
Base			27. 108	62	51	27. 017	51	48	79	S. E.	8	.32	..	Nimbus ..	4-4	Hidden ...	....	.....	.....	2.20 p. m.	.....	.....	Light rain.	
Summit	4	0 p. m.	23. 715	63	36	23. 648	36	36	100	S.	34	5. 78	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Ligh rain.
Base			27. 100	59	45	27. 016	46	45	92. 1	S. E.	2	.02	..	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Threatening.
Summit	4	57 p. m.	23. 731	65	37	23. 659	37	37	100	S.	36	6. 48	..	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.56	Heavy rain.
Base			27. 100	57	42	27. 021	42	41. 5	95. 6	S. E.	2	.02	..	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.30	Heavy rain.
Summit	6	0 p. m.	23. 724	61	35	23. 661	35	35	100	S.	26	3. 38	..	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Heavy rain.
Base			27. 090	56	43	27. 014	44	43	87. 8	S. E.	4	.08	..	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Light rain.
Summit	7	0 p. m.	23. 710	60	35	23. 649	35	35	100	S.	12	.72	..	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Light rain.
Base			27. 087	57	42	27. 008	42	41. 5	95. 6	N. W.	1	.01	..	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Light rain.
Summit	8	0 p. m.	23. 695	59	34	23. 636	34	34	100	S.	16	1. 28	..	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Light rain.
Base			27. 060	56	42	26. 984	42	41. 5	95. 6	0	0	0	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Light rain.
Summit	9	0 p. m.	23. 680	59	34	23. 621	34	34	100	S.	12	.72	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Light rain.
Base			27. 040	57	42	26. 961	42	41. 5	95. 6	S. E.	2	.02	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Light rain.
Summit	10	0 p. m.	23. 670	65	34	23. 598	34	34	100	S.	12	.72	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Light rain.
Base			27. 030	56	41	26. 954	42	41	91. 4	N. W.	2	.02	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Light rain.
Summit	11	22 p. m.	23. 650	64	35	23. 580	35	35	100	S.	8	.32	..	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.32	Light rain.
Base			27. 008	58	40	26. 927	41	39. 5	86. 7	N.	2	.02	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.67	Light rain.
Summit	12	0 mid-	23. 635	62	35	23. 570	35	34	90	S.	6	.18	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	11.30 p. m.	Blank..	Cloudy,	
Base		night.	27. 000	56	40	26. 924	40	39. 5	95. 5	N.	2	.02	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Light rain.

Meteorological record for May 12, 1873.

Summit	1	0 a. m.	23. 610	61	33	23. 547	33	32	89	S.	1	.01	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Cloudy.
Base			26. 978	56	40	26. 902	40	39. 5	95. 4	N.	4	.08	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Light rain.
Summit	2	0 a. m.	23. 591	62	32	23. 526	32	31	89	S.	3	.04	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Cloudy.
Base			26. 955	58	39	26. 874	39	38. 5	95. 3	N.	4	.08	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Light rain.
Summit	3	0 a. m.	23. 560	62	32	23. 495	32	31	89	S.	4	.08	....	Nimbus...	4-4	Hidden ...	....	.....	.....	2 40 a. m.	.....	.....	.....	Light rain.
Base			26. 948	56. 5	39	26. 871	39	38. 5	95. 3	N.	4	.08	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Light rain.
Summit	4	0 a. m.	23. 548	59	32	23. 489	32	31	89	S.	6	.18	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Light rain.
Base			26. 940	58	39	26. 859	39	38	97	N.	4	.08	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Light rain.
Summit	5	0 a. m.	23. 510	52	32	23. 466	32	31	89	S.	10	.50	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Light rain.
Base			26. 939	58. 5	39. 5	26. 857	39. 5	39	95. 4	N.	4	.08	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	.....	Light rain.

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Meteorological record for May 12, 1873—Continued.

(Hourly observations.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM- Attached.	THERM- Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
Summit	6 0 a. m.	23.500	56	32	23.447	32	31	89	N.	16	1.28	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Sleeting.
Base...		26.945	57	39	26.866	39	38.5	95.3	N.	1	.01	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light rain.
Summit	7 0 a. m.	23.502	56	32	23.449	32	31	89	N.	30	4.50	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Sleeting.
Base...		26.953	57	41	26.874	41	40	91.2	0	0	0	....	Nimbus...	....	Hidden ...	....	.....	.....	.....	.....	Light rain.
Summit	7 57 a. m.	23.510	57	32	23.455	32	31	89	N.	22	2.42	....	Nimbus ..	4-4	Hidden ...	....	.....	.....	.....	.07	Sleeting.
Base...		26.967	60	42	26.881	42	41	91.4	W.	1	.01	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.69	Light rain.
Summit	9 0 a. m.	23.524	54	32	23.475	32	31	89	N.	26	3.38	....	Stratus ...	4-4	Hidden ...	....	.....	.....	8 12 a. m.	Bl'k.	Cloudy.
Base...		26.959	59	43	26.875	43	42	91.6	S. E.	2	.02	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light rain.
Summit	10 0 a. m.	23.508	50	32	23.468	32	31	89	N.	20	2.00	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		26.960	58	41	26.879	42	41	91.4	E.	4	.08	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light rain.
Summit	11 0 a. m.	23.500	56	32	23.447	32	31	89	N.	18	1.62	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		26.968	59.5	42	26.884	43	41.5	87.4	N. W.	4	.08	....	Nimbus...	4-4	Hidden ...	....	.....	.....	10 45 a. m.	.....	Cloudy.
Summit	12 0 m ..	23.500	56	32	23.447	32	31	89	N.	30	4.50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		26.958	59	47	26.874	47	44	77.2	E.	2	.02	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	1 0 p. m.	23.510	55	32	23.459	32	31	89	N.	34	5.78	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		26.960	62	48	26.869	48	44	70.4	N.	2	.02	....	Stratus ...	3-4	Hidden ...	....	.....	.....	.....	.....	Clearing.
Summit	2 0 p. m.	23.484	50	32	23.444	32	31	89	N.	31	4.80	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		26.959	64	48	26.863	48.5	44	67	N.	4	.08	....	Stratus ...	2-4	Cumulus..	1-4	N. W.	.....	.....	.....	Clearing.
Summit	3 0 p. m.	23.490	63	32	23.423	32	31	89	N.	36	6.48	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		26.939	64	50	26.856	50	45	64.6	N.	8	.32	....	Stratus ...	2-4	Cumulus..	1-4	N. W.	.....	.....	.....	Clearing.
Summit	4 0 p. m.	23.470	58	32	23.413	32	31	89	N. W.	38	7.22	....	0	0	Cumulus..	2-4	N. W.	.....	.....	.....	Fair.
Base...		26.954	63	49	26.861	49	43	57.2	N. W.	6	.18	....	Stratus ...	3-4	0	0	0	.....	.....	.....	Cloudy.
Summit	4 57 p. m.	23.474	53	31	23.427	31	30	89	N. W.	40	8.00	....	0	0	Cumulus..	3-4	N. W.	.....	.....	.....	Fair.
Base..		26.960	62	50	26.869	50	43.5	54.8	N. W.	8	.32	....	Stratus ...	2-4	Cirrus	1-4	N. W.	.....	.....	.07	Fair.
Summit	6 0 p. m.	23.475	53	32	23.428	32	31	89	N. W.	44	9.68	....	0	0	Cumulus..	3-4	N. W.	.....	.....	.....	Fair.
Base ..		26.970	61	46	26.882	46	41.5	65.3	N. W.	4	.08	....	Stratus ...	1-4	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
Summit	7 0 p. m.	23.495	50	32	23.455	32	31	89	N. W.	30	4.50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		26.978	58	43	26.897	43	39	66.9	S. W.	4	.08	....	Stratus ...	3-4	0	0	0	.....	.....	.....	Fair.
Summit	8 0 p. m.	23.500	51	32	23.458	32	31	89	N. W.	42	8.82	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base .		26.990	57	38	26.911	38	36	81.1	N.	4	.08	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Fair.
Summit	9 0 p. m	23.498	56	31	23.445	31	30	89	N. W.	50	12.50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base		26.992	57	38	26.913	39	36.5	77	N.	4	.08	....	Stratus ...	1-4	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
Summit	10 0 p. m	23.510	58	30	23.459	30	28	70	N. W.	52	13.52	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base		26.990	54	35	26.913	30	34	80	N.	4	.08	....	Stratus ...	1-4	Cirrus	1-4	N. W.	.....	.....	.....	Fair.

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Summit	11 22 p. m.	24. 552	30	29	23. 467	29	28	89	N. W.	56	15. 68	....	Stratus	4-4	Hidden	....								Cloudy.
Base		30. 890	52	35	26. 951	35	34	80. 8	E.	4	.08	....	Stratus	1-4	Cirrus	1-4	N. W.							Fair.
Summit	19 0 mid	24. 524	64	29	23. 454	29	28	89	N. W.	54	14. 56	....	Stratus	4-4	Hidden	....								Cloudy.
Base	night.	30. 982	52	35	26. 915	35	34	89. 8	E.	4	.08	....	Stratus	1-4	Cirrus	1-4	W.							Fair.

Meteorological record for May 13, 1873.

Summit	1 0 a. m.	23. 505	58	28	23. 448	28	27	88	N. W.	48	11. 52	....	Stratus	4-4	Hidden	....								Cloudy.
Base		26. 975	53	35. 5	26. 916	35. 5	34	84. 9	E.	4	.08	....	0	0	0	0	0							Clear.
Summit	2 0 a. m.	23. 515	58	27	23. 458	27	26	88	W.	43	9. 24	....	Stratus	1-4	0	0	0							Fair.
Base		26. 960	53	34	26. 891	34	33	89. 5	E.	4	.08	....	0	0	0	0	0							Clear.
Summit	3 0 a. m.	23. 500	55	28	23. 449	28	27	88	W.	40	8. 00	....	Stratus	1-4	0	0	0							Fair.
Base		26. 940	52	35	26. 873	35	33	79. 7	E.	8	.32	....	0	0	0	0	0							Clear.
Summit	4 0 a. m.	23. 485	56	28	23. 432	28	27	88	W.	38	7. 22	....	Stratus	1-4	0	0	0							Fair.
Base		26. 938	51	34	26. 874	34	31	71. 2	E.	8	.32	....	0	0	0	0	0							Clear.
Summit	5 0 a. m.	23. 480	53	29	23. 433	29	28	89	W.	36	6. 48	....	Stratus	1-4	0	0	0							Fair.
Base		26. 930	52	34	26. 863	34	31	71. 2	E.	4	.08	....	0	0	0	0	0							Clear.
Summit	6 0 a. m.	23. 483	50	29	23. 443	29	28	89	W.	31	4. 80	....	Stratus	1-4	Cirrus	1-4	W.							Fair.
Base		26 918	52	37	26. 851	37	34	94. 8	E.	4	.08	....	Stratus	1-4	0	0	0							Clear.
Summit	7 0 a. m.	23. 485	62	30	23. 420	30	29	89	W.	36	6. 48	....	Stratus	2-4	Cirrus	1-4	W.							Fair.
Base		26. 878	52	45	26. 811	45	39	53. 3	N. E.	4	.08	....	Stratus	4-4	Hidden	....								Cloudy.
Summit	7 57 a. m.	23. 485	53	29	23. 418	29	28	89	W.	44	9. 68	....	Stratus	1-4	Cumulus	2-4	W.							Fair.
Base		26. 880	61	46	26. 792	46	39	47. 1	S.	4	.08	....	Stratus	4-4	Hidden	....								Cloudy.
Summit	9 0 a. m.	23. 450	57	31	23. 395	31	29	79	W.	54	14. 58	....	Stratus	2-4	Cirro-cum.	1-4	W.							Fair.
Base		26. 850	66	50	26. 750	51	42	39. 9	S. E.	10	.50	....	Stratus	3-4	Hidden	....								Cloudy.
Summit	10 0 a. m.	23. 435	58	32	23. 378	32	30	79	W.	50	12. 50	....	Stratus	3-4	Hidden	....								Fair.
Base		26. 841	66	51	26. 741	52	45	53. 5	S. E.	8	.32	....	Stratus	4-4	Hidden	....								Cloudy.
Summit	11 0 a. m.	23. 410	54	32	23. 361	32	31	89	W.	56	15. 68	....	Stratus	4-4	Hidden	....								Cloudy.
Base		26. 821	68	48	26. 716	48	44	70. 4	S. E.	6	.18	....	Nimbus	4-4	Hidden	....			10.25 a. m.					Light rain.
Summit	12 0 m ..	23. 389	58	33	23. 332	33	31	79	W.	52	13. 52	....	Stratus	4-4	Hidden	....								Cloudy.
Base		26. 778	65	50	26. 680	51	46	65. 3	S. E.	4	.08	....	Stratus	3-4	0	0	0		11.40 a. m.					Cloudy.
Summit	1 0 p. m.	23. 368	66	34	23. 294	34	33	90	W.	42	8. 82	....	Stratus	4-4	Hidden	....								Cloudy.
Base		26. 760	64	52	26. 664	52	47	66	S. E.	12	.72	....	Stratus	4-4	Hidden	....								Threatening.
Summit	2 0 p. m.	23. 340	57	32	23. 285	32	31	89	N. W.	36	6. 48	....	Stratus	4-4	Hidden	....								Cloudy.
Base		26. 741	61	47	26. 654	47	44	76. 7	S. E.	2	.02	....	Nimbus	4-4	Hidden	....			1.45 p. m.					Light rain.
Summit	3 0 p. m.	23. 303	59	32	23. 244	32	31	89	N. W.	40	8. 00	....	Stratus	4-4	Hidden	....								Cloudy.
Base		26. 747	63	48	26. 655	48	46	85	S.	2	.02	....	Stratus	3-4	Hidden	....				2.50 p. m.				Clearing.
Summit	4 0 p. m.	23. 280	54	32	23. 232	32	31	89	N. W.	44	9. 68	....	Stratus	4-4	Hidden	....								Threatening.
Base		26. 773	61	42	26. 685	43	41. 5	87. 4	N. W.	8	.32	....	Nimbus	4-4	Hidden	....			3.25 p. m.					Light rain.
Summit	4 57 p. m.	23. 225	53	31	23. 180	31	31	100	N. W.	51	13. 00	....	Stratus	4-4	Hidden	....								Threatening.
Base		26. 709	57	39	26. 720	39	37	81. 6	N. W.	8	.32	....	Stratus	4-4	Hidden	....				4.30 p. m.			.05	Cloudy.
Summit	6 0 p. m.	23. 190	52	31	23. 147	31	31	100	N. W.	46	10. 58	....	Stratus	4-4	Hidden	....								Threatening.
Base		26. 818	54	38	26. 746	38	36	81. 1	S. W.	8	.32	....	Stratus	3-4	0	0	0							Clearing.
Summit	7 0 p. m.	23. 200	51	29	23. 159	29	28	89	N. W.	30	4. 50	....	Stratus	4-4	Hidden	....								Threatening.
Base		26. 820	52	35	26. 750	35	32	69. 8	N. W.	8	.32	....	Stratus	4-4	Hidden	....								Cloudy.
Summit	8 0 p. m.	23. 202	53	29	23. 156	29	28	89	N. W.	36	6. 48	....	Stratus	4-4	Hidden	....								Threatening.
Base		26. 840	51	33	26. 776	33	32	89. 3	S. W.	8	.32	....	Stratus	3-4	0	0	0							Fair.
Summit	9 0 p. m.	23. 245	52	28	23. 202	28	27	88	N. W.	47	11. 04	....	Stratus	4-4	Hidden	....								Threatening.
Base		26. 848	50	32	26. 786	32	31	71	S. E.	4	.08	....	Stratus	2-4	0	0	0							Fair.

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Meteorological record for May 13, 1873.—Continued.

(Hourly observations.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from —.)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
Summit	10 0 p. m.	23.240	53	27	23.194	27	26	88	N. W.	53	14.04	....	Nimbus ..	4-4	Hidden ...	....	.....	9.20 p. m	.....	.....	Sleeting.
Base ...		26.849	47	31	26.794	32	30	79.4	N. W.	4	.08	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Summit	11 22 p. m.	23.315	55	27	23.264	27	26	88	N. W.	48	11.52	....	Nimbus...	4-4	Hidden ...	....	.....	.....	11.20 p. m	.04	Sleeting.
Base ...		26.849	47	32	26.794	32	30	79.4	N. W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	12 0 mid-night.	23.320	54	26	23.272	26	25	88	N. W.	44	9.68	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		26.850	47	32	26.795	32	30	79.4	N. W.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.

Meteorological record for May 14, 1873.

Summit	1 0 a. m.	23.325	57	26	23.270	26	25	88	N. W.	40	8.00	....	Stratus ...	4-4	Hidden...	....	.....	.....	.....	.....	Cloudy.
Base ...		26.846	46	32	26.796	32	30	79.4	N. W.	12	.72	....	Stratus ...	4-4	Hidden...	....	.....	.....	.....	.....	Cloudy.
Summit	2 0 a. m.	23.350	59	26	23.291	26	25	88	W.	48	11.52	....	Stratus ...	4-4	Hidden...	....	.....	.....	.....	.....	Cloudy.
Base ...		26.855	47	31	26.800	31	29	78.8	N. W.	12	.72	....	Stratus ...	4-4	Hidden...	....	.....	.....	.....	.....	Cloudy.
Summit	3 0 a. m.	23.350	58	25	23.293	25	24	88	W.	52	13.52	....	Stratus ...	4-4	Hidden...	....	.....	.....	.....	.....	Cloudy.
Base ...		26.870	48	30	26.813	30	29	88.8	N. W.	4	.08	....	Stratus ...	4-4	Hidden...	....	.....	.....	.....	.....	Cloudy.
Summit	4 0 a. m.	23.340	60	25	23.279	25	24	88	W.	60	18.00	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		26.865	47	30	26.810	30	28	78.2	N. W.	4	.08	....	Stratus ...	4-4	Hidden...	....	.....	.....	.....	.....	Cloudy.
Summit	5 0 a. m.	23.295	54	25	23.246	25	24	88	W.	54	14.58	....	Stratus ...	4-4	Hidden...	....	.....	.....	.....	.....	Cloudy.
Base ..		26.868	46	30	26.816	30	28	78.2	W.	8	.32	....	Nimbus...	4-4	Hidden...	....	.....	4 50 a. m.	.....	.....	Light snow.
Summit	6 0 a. m	23.300	54	24	23.251	24	23	87	W.	40	8.00	....	Stratus ...	4-4	Hidden...	....	.....	.....	.....	.....	Cloudy.
Base ..		26.870	46	30	26.818	30	28	78.2	N. W.	4	.08	....	Nimbus...	4-4	Hidden...	....	.....	.....	.....	.....	Light snow.
Summit	7 0 a. m.	23.285	55	25	23.234	25	24	88	W.	60	18.00	....	Stratus ...	4-4	Hidden...	....	.....	.....	.....	.....	Cloudy.
Base ...		26.868	46	31	26.816	31	29	78.8	W.	12	.72	....	Nimbus...	4-4	Hidden...	....	.....	.....	.....	.....	Light snow.
Summit	7 57 a. m.	23.285	52	23	23.241	23	22	86	W.	64	20.48	....	Stratus...	4-4	Hidden...	....	.....	.....	.....	.....	Cloudy.
Base ...		26.870	50	39	26.809	32	29	78.8	W.	1	.01	....	Stratus ...	4-4	Hidden...	....	.....	.....	7 15 a. m.	Blk ...	Cloudy.
Summit	9 0 a. m.	23.264	57	30	23.213	22	21	85	W.	56	16.82	....	Stratus ...	4-4	Hidden...	....	.....	.....	.....	.....	Cloudy.
Base ..		26.863	51	33	26.799	34	32	79.2	W.	12	.72	....	Stratus ...	2-4	Cumulus ..	2-4	N. W.	.....	.....	.....	Cloudy.
Summit	10 0 a. m.	23.242	57	33	23.227	23	22	86	W.	50	12.50	....	Stratus ...	4-4	Hidden...	....	.....	.....	.....	.....	Cloudy.
Base		26.861	49	34	26.801	34	30	61.7	W.	12	.72	....	Stratus ...	4-4	Hidden...	....	.....	.....	.....	.....	Cloudy.
Summit	11 0 a. m	23.200	57	44	23.175	44	23	57	W.	46	10.58	....	Stratus ...	4-4	Hidden...	....	.....	10 50 a. m.	.....	.....	Light snow.
Base		26.849	48	54	26.792	53	5.30	65.9	W.	10	.50	....	Nimbus ...	4-4	Hidden...	....	.....	.....	.....	.....	Cloudy.

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Summit	12	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	W.	30	4.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Base			26. 850	51	34	26. 786	35	31	62. 8	W.	12	.72	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	1	0 p. m.	23. 300	60	23	23. 245	23	23	86	W.	36	6.48	....	Stratus	4-4	Hidden	....	.....	.....	11 25 a. m.	.....	Light snow.
Base			26. 848	50	33. 5	26. 786	34	31	71. 2	W.	10	.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	2	0 p. m.	23. 298	60	23	23. 227	23	23	86	W.	40	8.00	....	Stratus	4-4	Hidden	....	.....	11 25 a. m.	11 50 a. m.	.....	Cloudy.
Base			26. 841	50	33	26. 779	34	32	79. 2	W.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	3	0 p. m.	23. 240	55	22	23. 249	22	21	85	W.	38	7.22	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Base			26. 841	49	32. 5	26. 781	33	29. 5	65. 4	N. W.	10	.50	....	Stratus	4-4	Hidden	....	.....	2 05 p. m.	2 45 p. m.	.....	Cloudy.
Summit	4	0 p. m.	23. 300	55	23	23. 249	23	22	86	W.	37	6.84	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Base			26. 840	49	32	26. 780	33	30. 5	66. 4	W.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light snow.
Summit	4	57 p. m.	23. 320	61	22	23. 257	22	21	83	W.	44	9.68	....	Nimbus	4-4	Hidden	....	.....	4 15 p. m.	.....	.01	Light snow.
Base			26. 850	48	32	26. 793	32	30	79. 4	N. W.	8	.32	....	Nimbus	4-4	Hidden	....	.....	3 55 p. m.	.....	.....	Light snow.
Summit	6	0 p. m.	23. 275	55	22	23. 224	22	21	85	W.	48	11.52	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light snow.
Base			26. 851	51	30	26. 787	31	29	78. 8	N. W.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light snow.
Summit	7	0 p. m.	23. 238	51	22	23. 197	22	21	85	W.	32	5.12	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light snow
Base			26. 839	47	30	26. 784	30	29	89	N.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light snow.
Summit	8	0 p. m.	23. 253	54	21	23. 208	21	20	85	W.	38	7.22	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Heavy snow.
Base			26. 840	47	27	26. 785	27	26	88	N. W.	12	.72	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light snow.
Summit	9	0 p. m.	23. 240	53	22	23. 195	22	21	85	W.	37	6.84	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Heavy snow.
Base			26. 838	45	27	26. 788	28	27	88. 3	W.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Threatening.
Summit	10	0 p. m.	23. 215	56	22	23. 163	22	21	85	W.	50	12.50	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Heavy snow.
Base			26. 829	45	27. 5	26. 779	28	27	88. 3	N. W.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	11	22 p. m.	23. 185	54	19	23. 138	19	18	84	N. W.	60	18.00	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.50	Heavy snow.
Base			26. 811	42	28	26. 768	28. 5	27	82. 9	N. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	8 40 p. m.	.04	Cloudy.
Summit	12	0 mid-night.	23. 167	57	19	23. 113	19	18	84	N. W.	66	21.78	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Heavy snow.
Base			26. 810	42	28	26. 767	28	27	88. 3	N. W.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.

Meteorological record for May 15, 1873.

Summit	1	0 a. m.	23. 123	56	19	23. 071	19	18	84	N. W.	54	14.58	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Heavy snow.
Base			26. 805	42	28	26. 762	28	26	76. 8	N. W.	16	1.28	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	2	0 a. m.	23. 155	53	19	23. 110	19	18	84	N. W.	60	18.00	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Heavy snow.
Base			26. 805	42	28	26. 762	28	26	76. 8	N. W.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	3	0 a. m.	23. 163	53	20	23. 118	20	19	85	N. W.	58	16.82	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Heavy snow.
Base			26. 805	40	26	26. 767	26	25	87. 6	N.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	4	0 a. m.	23. 170	54	20	23. 123	20	19	85	N. W.	66	21.78	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Heavy snow.
Base			26. 825	39	26	26. 790	26	25	87. 6	N. W.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	5	0 a. m.	23. 195	52	21	23. 152	21	20	85	N. W.	72	25.92	....	Stratus	4-4	Hidden	....	.....	.....	4. 10 a. m.	.....	Cloudy.
Base			26. 840	40	26	26. 802	26	25	87. 6	N. W.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	6	0 a. m.	23. 215	52	21	23. 172	21	20	85	N. W.	60	18.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Base			26. 855	39	26	26. 820	26	25	87. 6	N. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	7	0 a. m.	23. 240	53	20	23. 195	20	19	85	N. W.	50	12.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Base			26. 855	46	27	26. 803	27. 5	26	82. 4	N. E.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Misting.
Summit	7	57 a. m.	23. 270	55	22	23. 219	22	21	85	N. W.	72	25.92	....	Stratus	4-4	Hidden	....	.....	6. 45 a. m.	.....	.25	Clearing.
Base			26. 915	51	29	26. 851	29	28	88. 7	N.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light snow.
Summit	9	0 a. m.	23. 375	52	22	23. 331	22	21	85	N. W.	65	21.12	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Clearing.
Base			26. 928	51	30	26. 865	31. 5	30	84. 3	N. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.

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Meteorological record for May 15, 1873—Continued.

(Hourly observations.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM.		Corrected barometer.	HYGROM.		Relative humidity.	WIND.				LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Remarks.
			Attached.	Exposed.		Dry bulb.	Wet bulb.		Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from—)	Commen'd.	Ended.		
Summit	10 0 a. m.	23.380	52	22	23.336	22	21	85	N. W.	59	17.40	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Clearing.
Base ...		26.939	52	33	26.872	34	32	79.2	N. W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	11 0 a. m.	23.429	56	24	23.376	24	23	87	N. W.	40	8.00	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Clearing.
Base ...		26.970	53	33	26.901	34	32	79.2	W.	3	.04	....	Nimbus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Summit	12 0 m...	23.452	61	24	23.389	24	23	87	N. W.	35	6.12	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Clearing.
Base ...		26.969	55	36	26.909	37	33	61.9	N. E.	2	.02	....	Stratus ...	4-4	Hidden ...	....	.....	.....	11.30 a. m.	.....	Cloudy.
Summit	1 0 p. m.	23.406	63	25	23.399	25	24	87	N. W.	42	8.82	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Clearing.
Base ...		26.972	52	39	26.905	39	36.5	77	N. W.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	2 0 p. m.	23.492	61	25	23.429	25	24	87	W.	32	5.12	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Clearing.
Base ...		26.999	55.5	41	26.924	41	38	73.8	N. W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	3 0 p. m.	23.519	61	25	23.456	25	24	87	W.	20	2.00	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Clearing.
Base ...		27.002	55	39	26.928	40	38	82	N. W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	4 0 p. m.	23.530	61	25	23.465	25	24	87	W.	18	1.62	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Clearing.
Base ...		27.033	53	38	26.934	39	36	72.6	N. W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	4 57 p. m.	23.560	63	25	23.494	25	24	87	W.	12	.72	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Clearing.
Base ...		27.030	55	37	26.956	37	35	80.7	S. W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	Blk ...	Cloudy.
Summit	6 0 p. m.	23.560	57	25	23.505	25	24	87	W.	20	2.00	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Clearing.
Base ...		27.049	57	36	26.970	36	34.5	85.1	W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	7 0 p. m.	23.568	55	25	23.517	25	24	87	W.	16	1.28	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.069	54	35	26.997	35.5	34	84.9	0	0	0	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	8 0 p. m.	23.600	55	24	23.549	24	23	87	W.	19	1.80	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.070	54	35	26.998	35	33.5	84.7	W.	2	.02	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	9 0 p. m.	23.600	61	24	23.547	24	23	87	W.	22	2.00	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.070	54	34	26.998	35	33.5	84.7	N.	2	.02	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	10 0 p. m.	23.600	58	24	23.543	24	23	87	W.	22	2.42	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.060	54	34	26.988	34	33	89.5	N.	4	.08	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Summit	11 22 p. m.	23.640	67	24	23.583	24	23	87	W.	18	1.62	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Fair.
Base ...		27.065	53	32	26.996	32	31	89.6	N.	4	.08	....	0	0	Cirrus	1-4	0	.....	.....	.....	Clear.
Summit	12 0 mid't	23.640	57	23	23.583	23	22	86	W.	10	.50	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Fair.
Base .		27.068	53	32	26.999	32	31	89.6	N.	4	.08	....	0	0	Cirrus	1-4	N. E.	.....	.....	.....	Clear.

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Summit	1 0 a. m.	23.640	65	24	23.568	24	23	87	N.-W.	12	.72	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.060	52	33	26.993	33	32	79.3	N.	4	.06	....	Stratus ...	3-4	Cirrus	1-4	N.	.....	.....	.....	.....	Cloudy.
Summit	2 0 a. m.	23.620	63	24	23.553	24	23	87	N. W.	14	.96	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.050	51	34	26.980	34	33	89.5	N.	4	.09	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	3 0 a. m.	23.615	65	24	23.543	24	23	87	N. W.	18	1.62	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.050	52	34	26.983	34	33	89.5	N.	1	.01	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	4 0 a. m.	23.605	69	24	23.525	24	23	87	N. W.	16	1.62	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.050	53	33.5	26.981	34	33	89.5	N.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	5 0 a. m.	23.595	67	25	23.519	25	24	88	N. W.	24	2.88	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.050	55	34	26.976	34	33	89.5	N.	1	.01	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	6 0 a. m.	23.565	60	25	23.504	26	25	88	N. W.	24	2.88	....	0	0	Cumulus..	3-4	N. W.	.....	.....	.....	.....	Fair.
Base ...		27.058	55	35	26.984	35	34	89.5	0	0	0	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	7 0 a. m.	23.583	56	26	23.507	26	25	88	N. W.	22	2.42	....	Cumulus..	1-4	Cumulus..	2-4	N. W.	.....	.....	.....	.....	Fair.
Base ...		27.058	53	38	26.989	38	36	81.1	0	0	0	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	7 57 a. m.	23.600	58	26	23.543	26	25	88	N. W.	20	2.00	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.070	56	40	26.994	40	38	82	W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	9 0 a. m.	23.605	61	27	23.542	27	26	88	N. W.	24	2.88	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.075	57	42	26.996	41.5	39.5	82.6	S.	2	.02	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	10 0 a. m.	23.600	61	27	23.537	27	26	88	N. W.	14	.98	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.073	57	44	26.994	44	41	75.6	N. W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	11 0 a. m.	23.630	60	28	23.569	28	27	88	W.	12	.72	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.077	59	44	26.995	44	40	67.7	N.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	12 0 m ..	23.620	61	28	23.557	28	27	88	W.	10	.50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.080	59	43	26.996	44	42	83.6	N.	4	.08	....	Nimbus...	4-4	Hidden ...	....	.....	11.10 a. m.	.....	.....	.....	Light rain.
Summit	1 0 p. m.	23.628	59	29	23.569	29	28	89	W.	13	.84	....	Stratus ...	4-4	Hidden ...	....	.....	.....	12.40 p. m.	.....	.....	Cloudy.
Base ...		27.079	58.5	46	26.996	46	42	69.1	W.	4	.08	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	2 0 p. m.	23.630	57	29	23.575	29	28	80	W.	22	2.42	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.077	57	48	26.998	48	42	56.3	N. W.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	3 0 p. m.	23.625	64	29	23.555	29	28	89	W.	14	.98	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.075	56	46	26.999	46	45	92.1	N. W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	4 0 p. m.	23.645	60	28	23.573	28	27	88	W.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.080	59	46	26.996	46	41	61.7	N. W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	4 57 p. m.	23.640	62	28	23.575	28	27	88	W.	16	1.28	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.088	55	44	27.008	44	39	59.7	W.	2	.02	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.01	Cloudy.
Summit	6 0 p. m.	23.640	51	28	23.576	28	27	88	W.	18	1.62	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.098	56	42	27.022	43	38	58.7	W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	7 0 p. m.	23.640	51	28	23.576	28	27	88	W.	17	1.44	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.108	57	40	27.027	41	37.5	62.5	N. W.	2	.02	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	8 0 p. m.	23.610	54	28	23.570	28	27	88	W.	26	3.38	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.108	5	38	27.034	39	36.5	77	N. W.	2	.02	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	9 0 p. m.	23.600	56	27	23.566	27	26	88	W.	28	3.92	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.105	54	37	27.033	37	35	80.7	N.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	10 0 p. m.	23.647	54	27	23.575	27	26	88	W.	36	6.48	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.103	53	37	27.031	37	35	80.7	N.	2	.02	....	Stratus ...	3-4	0	0	0	.....	.....	.....	.....	Fair.
Summit	11 22 p. m.	23.625	50	27	23.561	27	26	88	W.	34	5.78	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...		27.090	52	36	27.025	37	35	80.7	N.	2	.02	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Summit	12 0 mid-	23.615	52	27	23.54	27	26	88	W.	37	6.84	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
Base ...	night.	27.090	52	36	27.025	36	34	80.7	N.	2	.02	....	Stratus ...	3-4	0	0	0	.....	.....	.....	.....	Cloudy.

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Meteorological record for May 17, 1873

(Hourly observations.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
Summit	1 0 a. m.	23.605	61	27	23.542	27	26	88	W.	36	6.48	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		27.085	53	36	27.016	36.5	35	85.3	N.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	2 0 a. m.	23.595	59	27	23.536	27	26	88	W.	32	5.12	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base..		27.070	52	36	27.003	36.5	35	85.3	N.	1	.01	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	3 0 a. m.	23.580	58	27	23.523	27	26	88	W.	24	2.88	....	Nimbus...	4-4	Hidden ...	....	.....	2 50 a.m.	.....	.....	Light snow.
Base...		27.063	51	36	26.999	36	35	90	0	0	0	....	Nimbus...	4-4	Hidden ...	....	.....	2 50 a.m.	.....	.....	Light rain.
Summit	4 0 a. m.	23.595	62	26	23.530	26	25	88	W.	18	1.62	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...		27.058	50	36	26.996	36	35	90	0	0	0	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light rain.
Summit	5 0 a. m.	23.595	63	25	23.528	25	24	88	W.	22	2.42	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light snow.
Base...		27.058	51	36	26.994	36	35.5	94.9	W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	4 10 a.m.	.....	Cloudy.
Summit	6 0 a. m.	23.575	60	24	23.514	24	23	87	W.	30	4.50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	5 10 a.m.	.....	Cloudy.
Base...		27.060	42	35.5	27.000	36	35	90	W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	7 0 a. m.	23.553	58	23	23.496	23	22	86	N. W.	35	6.12	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		27.070	51	36	27.006	37	35	80.7	W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	7 57 a. m.	23.539	50	23	23.499	23	22	86	N. W.	32	5.12	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.08	Cloudy.
Base..		27.075	51	39	27.011	40	37	73.2	W.	4	.08	....	Stratus ...	3-4	0	0	0	.....	.....	.04	Cloudy.
Summit	9 0 a. m.	23.552	58	25	23.403	25	24	88	N. W.	28	3.92	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		27.083	50	40	27.021	41	38	73.8	N. W.	6	.18	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	10 0 a. m.	23.578	57	26	23.523	26	25	88	N. W.	28	3.92	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		27.087	53	41	27.018	42	39	74.4	N. W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	11 0 a. m.	23.619	61	25	23.556	25	24	88	N. W.	25	3.12	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		27.085	52	43	27.018	44	40	67.7	N. W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	12 0 m ..	23.640	61	26	23.577	26	25	88	N. W.	18	1.62	....	Nimbus...	4-4	Hidden ...	....	.....	11 10 a.m.	11 25 a.m.	.....	Light snow.
Base...		27.090	51	41	27.031	41.5	38	69.9	N. W.	6	.18	....	Nimbus...	4-4	Hidden ...	....	.....	11 20 a.m.	.....	.....	Light rain.
Summit	1 0 p.m.	23.630	64	26	23.560	26	25	88	N. W.	16	1.28	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		27.090	52	45	27.023	45	40.5	64.5	N. W.	6	.18	....	Stratus ...	4-4	Hidden ...	....	.....	.....	12 20 p.m.	.....	Cloudy.
Summit	2 0 p.m.	23.618	64	26	23.548	26	25	88	N. W.	16	1.28	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base..		27.0	52	43	27.016	44	40.5	63.6	N. W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	1 20 p.m.	1 30 p.m.	.....	Cloudy.
Summit	3 0 p.m.	23.6[illegible]	60	27	23.562	27	26	88	N. W.	10	.50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base..		27.090	55	44	27.010	44	40	67.7	W.	5	.12	....	Nimbus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Light rain.
Summit	4 0 p.m	23.[illegible]	61	26	23.505	26	25	88	N. W.	34	4.50	....	Nimbus ...	4-4	Hidden ...	....	.....	3 20 p.m.	.....	.....	Light snow.
Base		27.090	54	44	27.025	42	40	82.9	N. E.	1	.01	....	Nimbus ...	4-4	Hidden ...	....	.....	3 0 p.m.	.....	.....	Light rain.
Summit	4 57 p.m	23.[illegible]	61	27	23.555	27	26	84	N. W.	24	2.88	....	Stratus ...	4-4	Hidden ...	....	.....	.....	4 30 p.m.	.03	Cloudy.
Base...		27.[illegible]	58	43	27.040	43	41	84.4	N. W.	4	.08	....	Stratus ...	3-4	Cirrus ...	1-4	N. W.	.....	4 40 p.m.	.01	Clearing.

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Summit	6	0 p.m.	23. 670	64	27	23. 569	27	26	88	N. W.	28	3. 92	....	Stratus	4-4	Hidden	....	....	....	....	....	....	
Base			27. 124	55	43	27. 047	41	40	75	N. W.	2	.02	....	Stratus	1-4	Cirrus	1-4	N.	....	....	....	....	Cloudy.
Summit	7	0 p.m.	23. 650	66	26	23. 576	26	25	88	N. W.	28	3. 92	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Fair.
Base			27. 122	53	41	27. 060	42	38	66. 1	W.	2	.02	....	Stratus	4-4	Hidden	....	....	....	6 05 p.m.	....	....	Light snow
Summit	8	0 p.m.	23. 660	70	26	23. 578	26	25	88	N. W.	22	2. 42	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
Base			27. 130	50	40	27. 063	41	37	65. 3	W.	4	.08	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Light snow.
Summit	9	0 p.m.	23. 685	64	26	23. 615	26	25	88	N. W.	29	4. 20	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
Base			27. 107	56	37	27. 091	37	36	90. 3	N.	4	.08	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Light snow.
Summit	10	0 p.m.	23. 680	64	26	23. 610	26	25	88	N. W.	25	3. 12	....	Nimbus	4-4	Hidden	....	....	....	9 0 p.m.	....	....	Light rain.
Base			27. 150	53	34	27. 076	35	34	89. 8	N.	4	.08	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Light snow.
Summit	11	22 p.m.	23. 690	69	26	23. 610	26	25	88	N. W.	30	4. 50	....	Nimbus	4-4	Hidden	....	....	....	....	9 04 p.m.	....	Threatening.
Base			27. 150	53	34. 5	27. 081	35	34	89. 8	N. E.	2	.02	....	Stratus	4-4	Hidden	....	....	....	....	....	.20	Light snow.
Summit	12	midn't	23. 688	67	26	23. 612	26	25	88	N. W.	26	3. 38	....	Nimbus	4-4	Hidden	....	....	....	....	....	.08	Cloudy.
Base			27. 150	55	35	27. 076	35	34. 5	94. 8	N. E.	2	.02	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Light snow.
																							Cloudy.

Meteorological record for May 18, 1873.

Summit	1	0 a. m.	23. 658	64	25	23. 588	25	24	88	N. W.	24	2. 88	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Light snow.
Base			27. 135	54	35	27. 063	36	35	90	0	0	0	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
Summit	2	0 a. m.	23. 670	68	25	23. 592	25	24	88	N. W.	28	3. 92	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Light snow.
Base			27. 120	52	35. 5	27. 053	36	35	90	0	0	0	....	Nimbus	4-4	Hidden	....	....	....	1 45 a. m.	....	....	Light rain.
Summit	3	0 a. m.	23. 640	67	25	23. 564	25	24	88	N. W.	28	3. 92	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Light snow.
Base			27. 110	51	35. 5	27. 046	36	35	90	N. E.	4	.08	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Light rain.
Summit	4	0 a. m.	23. 635	65	26	23. 563	26	25	88	N. W.	22	2. 42	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Light snow.
Base			27. 100	49	35	27. 040	36	35	90	0	0	0	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Light rain.
Summit	5	0 a. m.	23. 650	67	26	23. 574	26	25	88	N. W.	30	4. 50	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Light snow.
Base			27. 100	50	34	27. 038	34	33	89. 5	0	0	0	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Heavy snow.
Summit	6	0 a. m.	23. 620	62	25	23. 555	24	24	88	N. W.	25	3. 12	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Light snow.
Base			27. 110	49	34	27. 050	34. 5	34	94. 8	W.	4	.08	....	Stratus	4-4	Hidden	....	....	....	....	5 30 a. m.	....	Cloudy.
Summit	7	0 a. m.	23. 620	59	25	23. 561	25	24	88	N. W.	24	2. 88	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Light snow.
Base			27. 115	50	33. 5	27. 053	34	33	89. 5	E.	4	.08	....	Nimbus	4-4	Hidden	....	....	....	6 15 a. m.	....	....	Light snow.
Summit	7	57 a. m.	23. 611	60	22	23. 550	22	21	85	N. W.	28	3. 92	....	Nimbus	4-4	Hidden	....	....	....	....	....	.25	Light snow.
Base			27. 140	51	36	27. 076	36	35	90	W.	1	.01	....	Stratus	4-4	Hidden	....	....	....	....	7 20	.36	Cloudy.
Summit	9	0 a. m.	23. 650	60	24	23. 585	24	23	87	N. W.	30	4. 50	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Light snow.
Base			27. 143	50	37	27. 081	37	36	90. 3	N. W.	4	.08	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
Summit	10	0 a. m.	23. 650	60	24	23. 585	24	23	87	N. W.	26	3. 38	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Light snow.
Base			27. 142	52. 5	39	27. 074	39	37	81. 6	N.	4	.08	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
Summit	11	0 a. m.	23. 684	66	24	23. 610	24	23	87	N. W.	20	2. 00	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Light snow.
Base			27. 150	51	38	27. 088	39	37	81. 6	S. W.	8	.32	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
Summit	12	0 m ..	23. 699	67	24	23. 62[illegible]	24	23	87	N. W.	18	1. 62	....	Stratus	3-4	Hidden	....	....	....	....	11 35 a. m.	....	Clearing.
Base			27. 159	51	40	27. 09[illegible]	40. 5	37. 5	73. 5	W.	4	.08	....	Stratus	4-4	Hidden	....	....	....	11 15 a. m.	....	....	Sleeting.
Summit	1	0 p. m.	23. 700	63	26	23. 63[illegible]	26	25	88	N. W.	10	.50	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
Base			27. 159	53	43	27. 09[illegible]	44	40. 5	71. 6	N. W.	4	.08	....	Stratus	2-4	Cumulus	1-4	N. W.	....	12 18 p. m.	....	....	Fair.
Summit	2	0 p. m.	23. 690	61	26	23. 62[illegible]	26	25	88	N. W.	22	2. 42	....	0	0	Cumulus	3-4	N. W.	....	....	....	....	Fair.
Base			27. 163	53	43	27. 094	44	39	59. 7	N. W.	8	.32	....	Stratus	3-4	0	0	0	1 25 p. m.	1 35 p. m.	....	....	Clearing.
Summit	3	0 p. m.	23. 680	62	25	23. 614	25	24	88	N. W.	16	1. 28	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
Base			27. 162	56	45	27. 08[illegible]	45	41. 5	72. 3	W.	2	.02	....	Stratus	3-4	0	0	0	....	....	....	....	Cloudy.
Summit	4	0 p. m.	23. 698	64	25	23. 62[illegible]	25	24	88	N. W.	14	.98	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
Base			27. 178	57	42	27. 098	42. 5	39	70. 6	N. W.	8	.32	....	Stratus	3-4	0	0	0	....	....	....	....	Cloudy.

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Meteorological record for May 18, 1873—Continued.

(Hourly observations.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM.		Corrected barometer.	HYGROM.		Relative humidity.	WIND.				LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Remarks.
			Attached.	Exposed.		Dry bulb.	Wet bulb.		Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from—)	Commen'd.	Ended.		
Summit	4 57 p. m.	23.685	64	25	23.614	25	24	88	N. W.	24	2.88	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.04	Cloudy.
Base...		27.190	59	44	27.106	44	39	59.7	N. W.	12	.72	....	Stratus ...	1-4	Cirrus	2-4	N.	.....	.....	.....	Fair.
Summit	6 0 p. m.	23.685	61	24	23.621	24	23	87	N. W.	26	3.38	....	0	0	Cumulus..	2-4	N. W.	.....	.....	.....	Fair.
Base...		27.208	58	41	27.127	41	36	56.7	N. W.	8	.32	....	Stratus ...	1-4	Cirrus	2-4	N.	.....	.....	.....	Fair.
Summit	7 0 p. m.	23.715	63	23	23.648	23	22	86	N. W.	22	2.42	....	0	0	Cumulus..	2-4	N. W.	.....	.....	.....	Fair.
Base...		27.219	56	38	27.043	39	36	72.6	N. W.	4	.08	....	0	0	Cirrus	1-4	N.	.....	.....	.....	Clear.
Summit	8 0 p. m.	23.715	68	23	23.637	23	22	86	N. W.	24	2.88	....	0	0	Cumulus..	2-4	N. W.	.....	.....	.....	Fair.
Base...		27.219	53	33	27.150	34	32	79.2	N.	2	.02	....	Stratus ...	3-4	0	0	0	.....	.....	.....	Cloudy.
Summit	9 0 p. m.	23.723	65	23	23.653	23	22	86	N. W.	36	6.48	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Base...		27.220	51	33	27.156	33	32	89.3	N.	4	.08	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Summit	10 0 p. m.	23.732	67	23	23.656	23	22	86	N. W.	34	5.78	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Base...		27.219	51	32	27.155	32	30	79.4	N.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	11 22 p. m.	23.723	65	24	23.651	24	23	87	N. W.	30	4.50	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Fair.
Base...		27.209	48	30	27.152	31	29	78.8	N.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	12 0 mid-night.	23.700	63	24	23.633	24	23	87	N. W.	28	3.92	....	Stratus ...	1-4	Stratus ...	1-4	N. W.	.....	.....	.....	Fair.
Base...		27.192	47	31	27.137	32	30	79.4	N.	4	.08	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Clear.

Meteorological record for May 19, 1873.

Summit	1 0 a. m.	23.690	62	24	23.624	24	23	87	N. W.	26	3.38	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Fair.
Base...		27.170	47	31	27.115	32	30	79.4	N.	4	.08	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Summit	2 0 a. m.	23.665	62	24	23.599	24	23	87	N. W.	29	3.92	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Base...		27.163	45	32	27.113	33	31	80	N.	4	.08	....	Stratus ...	3-4	0	0	0	.....	.....	.....	Cloudy.
Summit	3 0 a. m.	23.654	63	24	23.580	24	23	87	N. W.	32	5.12	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Base...		27.150	44	33	27.103	34	31	71.2	N.	4	.08	....	Stratus ...	2-4	Cirrus	2-4	N.	.....	.....	.....	Cloudy.
Summit	4 0 a. m.	23.660	62	23	23.594	23	22	86	N. W.	50	12.50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		27.140	45	33	27.090	34	31	71.2	N.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	5 0 a. m.	23.680	61	24	23.556	24	23	87	N. W.	60	18.00	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		27.140	50	34	27.075	34	32	79.2	N.	1	.01	....	Stratus ...	3-4	0	0	0	.....	.....	.....	Cloudy.
Summit	6 0 a. m.	23.660	64	24	23.592	24	23	87	N. W.	50	15.00	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		27.130	51	33	27.080	34	32	84.6	N.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.

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Meteorological record for May 20, 1873.

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Meteorological record for May 20, 1873—Continued.

(Hourly observations.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM.		Corrected barometer.	HYGROM.		Relative humidity.	WIND.				LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Remarks.
			Attached.	Exposed.		Dry bulb.	Wet bulb.		Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from—)	Commenced.	Ended.		
Summit	6 0 a. m.	23.930	48	26	23.893	26	25	78	N.	16	1.28	....	0	0	0	0	0	.....	.....	.....	Clear.
Base...		27.435	47	31	27.370	32	29	74	N.	1	.01	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	7 0 a. m.	23.956	51	26	23.913	26	25	82	N.	14	.98	....	0	0	0	0	0	.....	.....	.....	Clear.
Base...		27.459	50	38	27.396	39	34	55	N.	1	.01	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	7.57 a. m.	23.965	48	26	23.928	26	25	82	N.	16	1.28	....	0	0	0	0	0	.....	.....	.....	Clear.
Base...		27.469	51	42	27.404	42	36	50	N.W.	2	.02	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	9 0 a. m.	23.995	51	27	23.952	27	26	83	N.	5	.12	....	0	0	0	0	0	.....	.....	.....	Clear.
Base...		27.473	52	44	27.405	44	37	42	S.W.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	10 0 a. m.	24.005	50	28	23.964	28	26	77	N.	5	.12	....	0	0	0	0	0	.....	.....	.....	Clear.
Base...		27.484	56	47	27.406	48	38	32	N.E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	11 0 a. m.	24.015	51	30	23.972	30	28	78	N.	6	.18	....	0	0	0	0	0	.....	.....	.....	Clear.
Base...		27.458	56	49	27.410	49	40	37	S.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	12 0 m.	24.038	52	31	23.992	31	29	79	N.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Base...		27.488	56	53	27.410	53	42	33	S.W.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	1 0 p. m.	24.050	55	32	23.998	32	30	79	N.	5	.12	....	0	0	0	0	0	.....	.....	.....	Clear.
Base...		27.486	57	58	27.406	58	46	32	N.E.	4	.08	....	0	0	Cumulus..	1-4	W.	.....	.....	.....	Clear.
Summit	2 0 p. m.	24.035	48	33	23.998	33	31	79	N.	2	.02	....	0	0	Cumulus..	1-4	N.	.....	.....	.....	Fair.
Base...		27.486	59	58	27.403	58	45	27	N.E.	4	.08	....	0	0	Cumulus..	1-4	W.	.....	.....	.....	Clear.
Summit	3 0 p. m.	24.055	56	34	24.001	34	32	79	0	0	0	....	0	0	Cumulus..	1-4	N.	.....	.....	.....	Fair.
Base...		27.483	63	56	27.388	57	45	31	N.E.	4	.08	....	0	0	Cumulus..	1-4	W.	.....	.....	.....	Clear.
Summit	4 0 p. m.	24.050	55	34	23.998	34	31	69	0	0	0	....	0	0	Cumulus..	1-4	0	.....	.....	.....	Fair.
Base...		27.478	64	57	27.381	58	46	32	S.W.	6	.18	....	0	0	Cumulus..	1-4	S.W.	.....	.....	.....	Clear.
Summit	4.57 p. m.	24.060	57	33	24.004	33	31	79	0	0	0	....	Hazy	....	Cumulus..	1-4	0	.....	.....	.....	Fair.
Base...		27.499	65	55	27.399	56	44	29	N.	4	.08	....	0	0	Cirrus	1-4	N.	.....	.....	.....	Fair.
Summit	6 0 p. m.	24.065	59	33	24.005	33	31	70	0	0	0	....	Hazy	....	Cumulus..	1-4	N.W.	.....	.....	.....	Fair.
Base...		27.500	63	54	27.405	54	44	38	S.E.	4	.08	....	Stratus ...	1-4	Cirrus	1-4	W.	.....	.....	.....	Fair.
Summit	7 0 p. m.	24.073	63	32	24.004	32	31	80	W.	2	.02	....	Hazy	....	Cumulus..	1-4	N.W.	.....	.....	.....	Fair.
Base...		27.508	61	49	27.418	49	41	44	S.E.	4	.08	....	Stratus ...	1-4	Cirrus	1-4	N.	.....	.....	.....	Fair.
Summit	8 0 p. m.	24.075	61	31	24.010	31	30	80	W.	5	.12	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Clear.
Base...		27.517	64	44	27.420	44	36	52	S.E.	4	.08	....	Stratus ...	1-4	0	0	0	.....	.....	.....	Clear.
Summit	9 0 p. m.	24.085	62	31	24.018	31	30	80	W.	8	.32	....	0	0	0	0	0	.....	.....	.....	Clear.
Base...		27.528	61	40	27.438	41	36	61	S.E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	10 0 p. m.	24.080	62	30	24.013	30	29	79	W.	2	.12	....	0	0	0	0	0	.....	.....	.....	Clear.
Base		27.528	58	38	27.443	40	35	64	S.E.	4	.08	....									

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Summit	11 22 p. m.	24.066	30	24.017	30	29	79	W.	7	.24	....	0	0	0	0	0	.....	.....	.....	Clear.
Base		27.529	54	27.456	36	34	71	S.E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	12 0 mid-	24.060	65	24.017	30	28	78	S. W.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Base	night.	27.529	54	27.456	36	33	71	S.E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.

Meteorological record for May 21, 1873.

Summit	1 0 a. m.	24.087	63	30	24.018	30	28	78	S. W.	10	.50	....	0	0	0	0	0	.....	.....	.....	Clear.
Base		27.523	53	35	27.453	36	33	71	S. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	2 0 a. m.	24.080	62	28	24.023	29	27	68	S. W.	13	.84	....	0	0	0	0	0	.....	.....	.....	Clear.
Base		27.523	53	36	27.453	36	34	80	S. E.	8	.32	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	3 0 a. m.	24.100	69	28	24.018	28	27	68	S. W.	7	.24	....	0	0	0	0	0	.....	.....	.....	Clear.
Base		27.523	52	34	27.455	35	33	80	E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	4 0 a. m.	24.105	69	29	24.023	29	27	78	S. W.	4	.08	....	Stratus....	1-16	0	0	0	.....	.....	.....	Clear,
Base		27.525	51	34	27.460	35	32	70	E.	8	.32	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	5 0 a. m.	24.106	62	29	24.033	29	27	78	S. W.	11	.60	....	Stratus....	1-16	0	0	0	.....	.....	.....	Clear.
Base		27.527	51	35	27.462	35	33	80	E.	8	.32	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	6 0 a. m.	24.095	60	29	24.032	29	27	78	S. W.	10	.50	....	Stratus....	1-4	0	0	0	.....	.....	.....	Clear.
Base		27.527	50	35	27.464	36	33	75	E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	7 0 a. m.	24.103	62	29	24.036	29	27	78	S. W.	12	.72	....	Stratus....	1-8	0	0	0	.....	.....	.....	Clear.
Base		27.555	59	42	27.470	42	38	66	E.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Summit	7 57 a. m.	24.108	63	30	24.039	30	28	78	S. W.	6	.18	....	Hazy.....	....	0	0	0	.....	.....	.....	Clear.
Base		27.560	57	48	27.480	48	40	43	N. W.	4	.08	....	0	0	Cirrus.....	1-4	C.	.....	.....	.....	Clear.
Summit	9 0 a. m.	24.115	59	31	24.055	31	29	79	S. W.	14	.98	....	Stratus....	1-8	0	0	0	.....	.....	.....	Clear.
Base		27.548	54	50	27.475	51	42	40	N.	6	.18	....	0	0	Cirrus.....	1-4	C.	.....	.....	.....	Clear.
Summit	10 0 a. m.	24.102	35	32	24.053	32	29	69	S. W.	18	1.62	....	Stratus....	1-8	0	0	0	.....	.....	.....	Clear.
Base		27.539	54	52	27.466	52	42	35	S. E.	2	.02	....	0	0	Cirrus.....	2-4	C.	.....	.....	.....	Fair.
Summit	11 0 a. m.	24.105	57	32	24.049	32	30	79	S.	16	1.28	....	0	0	Cirro-strat.	2-4	0	.....	.....	.....	Fair.
Base		27.528	55	56	27.453	56	45	35	S.	4	.08	....	0	0	Cirrus.....	3-4	C.	.....	.....	.....	Fair.
Summit	12 0 m ..	24.100	57	33	24.044	33	30	69	S.	20	2.00	....	0	0	Cirro-strat.	2-4	0	.....	.....	.....	Fair.
Base		27.523	57	55	27.443	56	45	35	S. W.	8	.32	....	0	0	Cirrus.....	3-4	W.	.....	.....	.....	Fair.
Summit	1 0 p.m.	24.090	61	32	24.025	32	30	79	S.	22	2.42	....	Cumulus..	1-8	Cirro-strat.	2-4	0	.....	.....	.....	Fair.
Base		27.523	58	57	27.440	57	46	36	S. W.	8	.32	....	0.	0	Cirrus.....	3-4	S. W.	.....	.....	.....	Fair.
Summit	2 0 p.m.	24.078	59	33	24.018	33	30	69	S.	19	1.80	....	Cumulus..	1-8	Cirro-strat.	2-4	N. W.	.....	.....	.....	Fair.
Base		27.504	62	59	27.412	59	48	38	S. W.	6	.18	....	0	0	Cirrus.....	3-4	S. W.	.....	.....	.....	Fair.
Summit	3 0 p.m.	24.068	60	32	24.005	32	30	79	S.	24	2.88	....	Cumulus..	1-4	Cirro-strat.	1-4	N. W.	.....	.....	.....	Fair.
Base		27.510	63	56	27.415	56	16	40	N. W.	8	.32	....	Stratus....	1-4	Cirrus.....	4-4	S. W.	.....	.....	.....	Cloudy.
Summit	4 0 p.m.	24.068	63	32	23.999	32	30	79	S.	20	2.00	....	Hazy.....	....	Cumulus..	2-4	0	.....	.....	.....	Fair.
Base		27.495	61	55	27.405	56	46	36	W.	8	.32	....	Stratus....	2-4	Cirrus.....	2-4	C.	.....	.....	.....	Cloudy.
Summit	4 57 p.m.	24.058	62	32	23.991	32	30	79	S. W.	18	1.62	....	Hazy.....	....	Cumulus..	3-4	S. W.	.....	.....	.....	Fair.
Base		27.489	60	53	27.402	53	44	42	S. W.	4	.08	....	Stratus....	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	6 0 p.m.	24.040	59	31	23.980	31	30	89	S. W.	22	2.42	....	Hazy.....	....	Cumulus..	3-4	S. W.	.....	.....	.....	Fair.
Base		27.490	61	52	27.400	52	43	41	S. W.	4	.08	....	Stratus....	4-4	Hidden....	....	.....	.....	.....	.....	Cloudy.
Summit	7 0 p.m.	24.050	59	30	23.990	30	29	89	S. W.	18	1.62	....	Hazy.....	....	Stratus....	3-4	S. W.	.....	.....	.....	Fair.
Base		27.488	58	48	27.405	49	41	44	N.W.	4	.08	....	Stratus....	4-4	Hidden....	....	.....	.....	.....	.....	Cloudy.
Summit	8 0 p.m.	24.048	63	31	23.979	31	29	79	W.	12	.72	....	Hazy.....	....	Stratus....	3-4	W.	.....	.....	.....	Fair.
Base		27.480	59	48	27.395	48	41	49	S. W.	4	.08	....	Stratus....	4-4	Hidden....	....	.....	.....	.....	.....	Cloudy.
Summit	9 0 p.m.	24.050	66	31	23.975	31	30	69	W.	10	.50	....	Hazy.....	....	Stratus....	3-4	W.	.....	.....	.....	Fair.
Base		27.490	60	43	27.403	44	39	60	N. E.	4	.08	....	Stratus....	4-4	Hidden....	....	.....	.....	.....	.....	Cloudy.

43 W

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Meteorological record for May 21, 1873—Continued.

(Hourly observations.

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
Summit	10 0 p.m.	24.040	61	31	23.975	31	30	89	W.	6	.18	....	Hazy	....	Stratus	3-4	W.	....	....	....	Fair.
Base		27.485	60	42	27.399	42	38	66	N. E.	4	.02	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Summit	11 22 p.m.	24.030	63	31	23.961	31	30	89	S. W.	16	1.28	....	Stratus	4-4	Hidden	....	....	....	....	....	Threatning.
Base		27.458	54	41	27.385	41	37	65	N. E.	4	.08	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Summit	12 0 mid-night.	24.019	61	32	23.954	32	32	100	S. W.	7	.24	....	Nimbus	4-4	Hidden	....	....	11.25 p.m.	....	....	Heavy rain.
Base		27.448	54	40	27.375	41	38	74	N. E.	2	.02	....	Stratus	4-4	Hidden	....	....	11.50 p.m.	....	....	Light rain.

Meteorological record for May 22, 1873.

Summit	1 0 a. m.	24.019	65	32	23.946	32	32	100	S.W.	20	2.60	....	Nimbus	4-4	Hidden	....	....	....	....	....	Heavy rain.
Base		27.435	54	40	27.365	41	40	91	N.	1	.01	....	Nimbus	4-4	Hidden	....	....	....	....	....	Light rain.
Summit	2 0 a. m.	24.017	66	32	23.942	32	32	100	S.W.	26	3.38	....	Nimbus	4-4	Hidden	....	....	....	....	....	Heavy rain.
Base		27.425	53	41	27.355	42	40	83	N.	4	.08	....	Nimbus	4-4	Hidden	....	....	....	....	....	Light rain.
Summit	3 0 a. m.	24.009	64	33	23.928	33	33	100	S.W.	22	2.42	....	Nimbus	4-4	Hidden	....	....	....	....	....	Heavy rain.
Base		27.425	53	41	27.354	42	41	91	N.	4	.08	....	Nimbus	4-4	Hidden	....	....	....	....	....	Light rain.
Summit	4 0 a. m.	23.997	67	33	23.929	33	33	100	S.W.	36	6.48	....	Nimbus	4-4	Hidden	....	....	....	....	....	Heavy rain.
Base		27.415	55	43	27.340	43	42	87	N.	4	.08	....	Nimbus	4-4	Hidden	....	....	....	....	....	Light rain.
Summit	5 0 a. m.	23.970	63	33	23.901	33	32	89	W.	30	4.50	....	Stratus	4-4	Hidden	....	....	....	4.46 a. m.	....	Cloudy.
Base		27.410	55	44	27.336	44	43	92	W.	4	.08	....	Stratus	4-4	Hidden	....	....	....	4.30 a. m.	....	Threatening.
Summit	6 0 a. m.	23.970	63	34	23.901	34	33	90	W.	34	5.78	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Base		27.415	56	41	27.337	41	40	91	N. W.	4	0.8	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Summit	7 0 a. m.	23.950	60	34	23.887	34	33	90	S.W.	37	6.84	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Base		27.410	55	44	27.335	44	43	92	Calm.	0	.00	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Summit	7 57 a. m.	23.938	57	34	23.882	34	33	90	S.W.	35	6.12	....	Stratus	4-4	Hidden	....	....	....	....	.82	Cloudy.
Base		27.408	54	44	27.335	44	43	92	N. W.	4	.08	....	Stratus	4-4	Hidden	....	....	....	....	.13	Cloudy.
Summit	9 0 a. m.	23.909	59	33	23.900	33	32	89	S.W.	24	2.88	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Base		27.408	53	46	27.332	46	45	92	W.	1	.01	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Summit	10 0 a. m.	24.000	62	34	23.901	33	32	89	S.W.	30	4.50	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Base		27.408	53	49	27.340	49	47	92	S.W.	4	.08	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Summit	11 0 a. m.	24.000	64	35	23.930	35	34	89	W.	11	1.32	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.

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Meteorological record for May 23, 1873.

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Meteorological record for May 23, 1873—Continued.

(Hourly observations.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
Summit	11 0 a. m.	23.931	61	39	23.866	39	38	91	W.	30	4.50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.300	60	60	27.213	59	54	70	W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	12 0 m.	23.932	63	39	23.863	39	38	91	W.	25	3.12	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.295	62	63	27.203	62	56	67	S.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	1 0 p. m.	23.935	66	40	23.860	40	39	91	W.	16	1.28	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.285	63	63	27.190	62	57	69	W.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	2 0 p. m.	23.915	63	40	23.846	40	39	91	W.	31	4.80	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.240	66	64	27.178	64	59	73	S. W.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	3 0 p. m.	23.918	69	42	23.836	42	41	91	W.	49	8.00	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.265	66	64	27.164	64	58	68	E.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	4 0 p. m.	23.915	71	41	23.829	41	40	91	W.	36	6.48	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.240	67	63	27.137	63	58	72	S.	4	.08	....	Stratus ...	3-4	0	0	0	.....	.....	.....	Cloudy.
Summit	4 57 p. m.	23.900	67	42	23.822	42	41	91	W.	38	7.22	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.220	65	62	27.131	62	56	67	S.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	6 0 p. m.	23.885	71	42	23.799	42	41	91	W.	30	4.50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.210	68	58	27.105	58	54	76	S. E.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	7 0 p. m.	23.885	73	43	23.795	43	42	91	W.	48	11.52	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.189	65	58	27.091	59	54	70	S. E.	8	.32	....	Stratus ...	1-4	Cirrus	2-4	W.	.....	.....	.....	Fair.
Summit	8 0 p. m.	23.860	67	43	23.782	43	42	91	S. W.	50	12.50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.189	65	54	27.091	54	52	83	N.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	9 0 p. m.	23.854	65	42	23.781	42	41	91	S. W.	46	10.58	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.170	65	54	27.081	55	52	84	N.	8	.32	....	Stratus ...	3-4	0	0	0	.....	.....	.....	Cloudy.
Summit	10 0 p. m.	23.844	69	41	23.762	41	40	91	S. W.	52	13.52	....	Stratus ...	3-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.151	63	53	27.057	53	51	86	N.	8	.32	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Summit	11 22 p. m.	23.800	75	41	23.706	41	40	91	W.	60	18.00	....	Stratus ...	3-4	0	0	0	.....	.....	.....	Fair.
Base ...		27.110	60	54	27.033	54	52	83	N.	8	.32	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Summit	12 0 mid-night.	23.754	74	41	23.662	41	40	91	W.	64	20.48	....	Stratus ...	3-4	0	0	0	.....	.....	.....	Fair.
Base ...		27.090	63	54	26.997	54	52	87	N.	4	.08	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Cloudy.

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Meteorological record for May 21, 1873.

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Meteorological record for May 25, 1873.

(Hourly observations.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
Summit	1 0 a. m.	23.584	65	37	23.512	37	36	90	W.	68	23.12	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		27.025	60	51	26.959	51	49	76	N. W.	[illegible]	.32	....	Nimbus...	4-4	Hidden ...	....	.....	12.45 a.m.	.....	.....	Light rain.
Summit	2 0 a. m.	23.600	65	37	23.528	37	36	90	W.	72	25.92	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		27.025	60	50	26.939	50	49	93	N. W.	[illegible]	.32	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light rain.
Summit	3 0 a. m.	23.630	62	36	23.556	36	35	90	W.	72	25.92	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		27.048	59	50	26.961	50	49	93	W.	4	.08	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light rain.
Summit	4 0 a. m.	23.615	60	36	23.554	36	35	90	W.	65	21.12	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		27.060	57	49	26.984	49	48	93	W.	1	.01	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light rain.
Summit	5 0 a. m.	23.650	57	35	23.625	35	35	100	W.	50	12.50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		27.075	56	48	26.999	48	47	93	W.	8	.32	....	Nimbus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Light rain.
Summit	6 0 a. m.	23.630	53	35	23.643	35	35	100	W.	42	8.82	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		27.100	56	46	27.024	46	45	92	Calm.	0	.00	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light rain.
Summit	7 0 a. m.	23.710	54	35	23.661	35	35	100	W.	36	6.48	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base...		27.128	56	48	27.052	48	47	93	W.	4	.08	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.....	Light rain.
Summit	7 57 a. m.	23.765	57	35	23.709	35	34	90	W.	35	6.12	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Clearing.
Base...		27.155	58	49	27.074	49	48	93	N.	4	.08	....	Stratus ...	3-4	0	0	0	.....	7.40 a. m.	.17	Clearing.
Summit	9 0 a. m.	23.762	58	36	23.704	36	35	90	N.	50	4.50	....	Cumulus..	1-4	Hidden ...	....	.....	.....	.....	.....	Fair.
Base...		27.160	58	54	27.079	54	52	87	N. W.	4	.08	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Summit	10 0 a. m.	23.800	58	36	23.742	36	35	90	N.	24	2.88	....	Cumulus..	1-4	Hidden ...	....	.....	.....	.....	.....	Fair.
Base...		27.189	59	57	27.107	57	54	78	N. W.	4	.08	....	Stratus ...	3-4	0	0	0	.....	.....	.....	Cloudy.
Summit	11 0 a. m.	23.830	59	57	23.770	57	55	80	N.	18	1.62	....	Cumulus..	1-4	Hidden ...	....	.....	.....	.....	.....	Fair.
Base...		27.200	59	57	27.110	52	52	69	N. W.	4	.08	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Fair.
Summit	12 0 m...	23.865	67	40	23.787	40	37	73	N.	16	1.28	....	Cumulus..	1-4	Hidden ...	....	.....	.....	.....	.....	Fair.
Base...		27.210	62	61	27.119	61	57	77	N. W.	4	.08	....	0	0	Cumulus..	2-4	N.	.....	.....	.....	Fair.
Summit	1 0 p. m.	23.875	65	40	23.805	40	37	73	N.	12	.72	....	Hazy	....	Cumulus..	1-4	0	.....	.....	.....	Fair.
Base..		27.220	64	65	27.124	66	52	33	N. W.	4	.08	....	0	0	Cumulus..	1-4	N. E.	.....	.....	.....	Fair.
Summit	2 0 p. m.	23.870	62	40	23.823	40	36	65	N.	6	.18	....	Hazy	....	Cumulus..	1-4	0	.....	.....	.....	Fair.
Base...		27.235	67	67	27.130	67	53	33	N. E.	6	.18	....	0	0	Cumulus..	1-4	N. E.	.....	.....	.....	Fair.
Summit		23.918	67	41	23.849	41	38	71	N.	5	.12	....	Hazy	....	Cumulus..	1-4	0	.....	.....	.....	Fair.
Summit	3 0 p. m.	27.241	70	67	27.[illegible]	67	54	47	N. W.	4	.08	....	0	0	Cumulus..	1-4	N. E.	.....	.....	.....	Fair.
Base		[illegible]		42	[illegible]	[illegible]	44	45	[illegible]	[illegible]	[illegible]	....	Hazy ...	....	Cumulus..	2-4	N.	.....	.....	.....	Fair.
Summit	4 0 p. m.	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N. W.	[illegible]	[illegible]	....	0	0	Cumulus..	2-4	N. W.	.....	.....	.....	Fair.
Base		[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	....	Hazy ...	....	Cumulus..	2-4	N.	.....	.....	.....	Fair.
Summit	4 0 p. m.	[illegible]		65	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	....	0	0	Cumulus..	2-4	N. W.	.....	.....	.....	Fair.

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Summit	6	0 p. m.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Base			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Summit	7	0 p. m.	24.000	62	60	23.890	60	47	71	N.	7	.04	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	.....	Fair.
Base			27.300	63	52	27.214	53	46	57	N.	6	.12	....	Hazy	....	0	0	0	0	0	.....	.....	.....	.....	Fair.
Summit	8	0 p. m.	23.970	64	38	23.890	38	36	71	N. W.	4	.02	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.
Base			27.320	62	47	27.236	48	42	56	N.	4	.08	....	Hazy	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
Summit	9	0 p. m.	24.001	73	37	23.911	37	30	90	N. W.	7	.24	....	Hazy	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
Base			27.349	65	45	27.249	46	41	62	N.	4	.08	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.
Summit	10	0 p. m.	24.020	73	36	23.930	36	35	90	N. W.	1	.01	....	Hazy	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
Base			27.320	63	44	27.255	44	41	76	N.	4	.08	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.
Summit	11	22 p. m.	24.000	69	37	23.918	37	34	71	W.	10	.50	....	Hazy	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
Base			27.350	58	43	27.267	44	41	76	N.	4	.08	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.
Summit	12	0 mid-night.	24.052	68	37	23.942	37	34	71	W.	6	.18	....	Hazy	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
Base			27.350	57	44	27.270	44	41	76	N.	4	.08	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.

Meteorological record for May 26, 1873.

Summit	1	0 a. m.	24.025	67	37	23.947	37	34	71	W.	2	.02	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.
Base			27.350	57	43	27.270	43	40	75	N.	8	.32	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.
Summit	2	0 a. m.	24.020	63	36	23.951	36	34	80	W.	4	.08	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.
Base			27.350	57	43	27.290	43	40	75	N.	4	.08	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.
Summit	3	0 a. m.	24.020	63	36	23.951	36	34	80	W.	5	.12	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.
Base			27.360	55	43	27.290	43	40	75	N.	8	.32	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.
Summit	4	0 a. m.	24.036	67	36	23.958	36	34	80	N.	7	.24	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.
Base			27.365	53	43	27.295	43	40	75	N.	4	.08	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.
Summit	5	0 a. m.	24.042	65	37	23.969	37	35	80	N.	2	.02	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.
Base			27.350	53	44	27.300	44	40	68	N.	8	.32	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.
Summit	6	0 a. m.	24.058	64	40	23.987	40	37	72	N.	2	.02	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.
Base			27.400	57	44	27.320	44	41	76	N.	4	.08	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.
Summit	7	0 a. m.	24.070	64	41	23.999	41	38	74	0	0	0	....	0	0	0	0	0	0	0	.....	.....	.....	.....	Clear.
Base			27.415	56	50	27.337	50	45	61	N.	4	.08	....	0	0	Cirrus	1-4	C.	.....	.....	.....	.....	Clear.
Summit	7	57 a. m.	24.080	59	43	24.020	43	39	66	0	0	0	....	Stratus	1-4	Cirrus	1-8	N.	.....	.....	.....	.....	Fair.
Base			27.425	57	49	27.346	49	47	85	N.	4	.08	....	0	0	Cirrus	1-4	W.	.....	.....	.....	.....	Fair.
Summit	9	0 a. m.	24.085	57	43	24.029	43	40	75	0	0	0	....	Stratus	1-4	Cirro-str	1-4	N.	.....	.....	.....	.....	Fair.
Base			27.421	59	63	27.336	64	52	89	N.	2	.02	....	Haze	0	Cirrus	2-4	W.	.....	.....	.....	.....	Fair.
Summit	10	0 a. m.	24.090	60	44	24.027	44	40	67	S.	8	.32	....	Cumulus	1-8	Cirro-str	1-4	S.	.....	.....	.....	.....	Fair.
Base			27.428	61	67	27.338	67	53	33	N. W.	3	.04	....	Haze	0	Cirrus	3-4	W.	.....	.....	.....	.....	Fair.
Summit	11	0 a. m.	24.075	63	46	24.006	46	41	69	S.	1	.01	....	Hazy	....	Cirro-cum	3-4	S.	.....	.....	.....	.....	Fair.
Base			27.409	63	69	27.314	69	55	37	N. W.	4	.08	....	Haze	0	Cirrus	3-4	W.	.....	.....	.....	.....	Fair.
Summit	12	0 m ..	24.084	63	47	24.015	47	42	61	S. W.	6	.18	....	Hazy	....	Cumulus	3-4	S.	.....	.....	.....	.....	Fair.
Base			27.400	66	72	27.308	71	56	33	S.	4	.08	....	Haze	0	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
Summit	1	0 p. m.	24.070	65	46	23.997	46	41	60	S. W.	2	.02	....	Hazy	...	Cumulus	3-4	S.	.....	.....	.....	.....	Fair.
Base			27.392	69	71	27.294	71	56	33	N. W.	4	.07	....	Hazy	0	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
Summit	2	0 p. m.	24.083	65	46	24.010	46	42	68	W.	12	.72	....	Hazy	....	Cumulus	4-4	W.	.....	.....	.....	.....	Fair.
Base			27.405	69	71	27.297	71	57	35	W.	4	.08	....	Stratus	2-4	Cirrus	1-4	W.	.....	.....	.....	.....	Cloudy.
Summit	3	0 p. m.	24.065	65	46	23.992	46	41	60	W.	10	.50	....	Hazy	....	Cumulus	3-4	W.	.....	.....	.....	.....	Fair.
Base			27.405	72	71	27.295	71	55	29	W.	4	.08	....	Hazy	0	Cirrus	2-4	W.	.....	.....	.....	.....	Fair.
Summit	4	0 p. m.	24.070	69	47	23.998	47	41	55	W.	14	.93	....	Hazy	....	Cumulus	3-4	W.	.....	.....	.....	.....	Fair.
Base			27.410	74	70	27.288	70	55	32	N. W.	4	.08	....	Stratus	3-4	Cirrus	1-4	W.	.....	.....	.....	.....	Cloudy.

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Meteorological record for May 26, 1873—Continued.

(Hourly observations.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
Summit	4 57 p. m.	24.062	71	45	23.976	45	40	60	W.	16	1.28	....	Hazy	....	Cirro-cum	2-4	W.	.....	.....	.....	Fair.
Base ..		27.395	74	69	27.273	69	54	31	W.	4	.08	....	Stratus	1-4	Cirrus	1-4	W.	.....	.....	.....	Fair.
Summit	6 0 p. m.	24.050	68	44	23.970	44	39	59	W.	10	.50	....	Hazy	....	Cirro-cum	2-4	W.	.....	.....	.....	Fair.
Base ..		27.378	66	59	27.276	58	49	48	S. W.	4	.08	....	Stratus	1-4	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
Summit	7 0 p. m.	24.040	66	46	23.965	46	42	68	W.	20	2.03	....	Hazy	....	Cirro-cum	2-4	W.	.....	.....	.....	Fair.
Base ..		27.360	62	56	27.266	57	49	55	S. E.	4	.08	....	Stratus	1-4	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
Summit	8 0 p. m.	24.035	67	45	23.947	45	43	84	W.	16	1.22	....	Hazy	....	Stratus	3-4	W.	.....	.....	.....	Fair.
Base ..		27.350	64	52	27.253	53	48	64	S. E.	4	.08	....	Stratus	3-4	0	0		.....	.....	.....	Fair.
Summit	9 0 p. m.	24.035	68	44	23.955	44	42	83	W.	20	2.00	....	Hazy	....	Stratus	3-4	W.	.....	.....	.....	Fair.
Base ..		27.370	67	53	27.267	51	48	64	S. E.	4	.08	....	Stratus	2-4	0	0		.....	.....	.....	Fair.
Summit	10 0 p. m.	24.032	72	42	23.944	42	41	83	W.	24	2.88	....	Hazy	....	Stratus	4-4	W.	.....	.....	.....	Fair.
Base		27.370	65	51	27.272	51	47	72	S. E.	4	.08	....	Stratus	3-4	0	0		.....	.....	.....	Fair.
Summit	11 22 p. m.	24.000	67	44	23.922	44	43	84	W.	18	1.62	....	Hazy	....	Stratus	4-4	W.	.....	.....	.....	Fair.
Base ..		27.362	62	51	27.270	51	47	72	S. E.	4	.08	....	Stratus	4-4	Hidden	....		.....	.....	.....	Cloudy.
Summit	12 0 mid-	24.030	65	44	23.947	44	43	84	W.	16	1.28	....	Hazy	....	Stratus	4-4	W.	.....	.....	.....	Fair.
Base ..	night.	27.362	61	50	27.272	51	47	72	S. E.	4	.08	....	Stratus	4 4	Hidden	....		.....	.....	.....	Cloudy.

Meteorological record for May 27, 1873.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
Summit	1 0 a. m.	24.000	61	44	23.933	44	43	84	W.	14	.98	....	Hazy	....	Stratus	4-4	W.	.....	.....	.....	Fair.
Base .		27.357	59	51	27.274	51	47	72	S. E.	4	.08	....	Stratus	4-4	Hidden	....		.....	.....	.....	Cloudy.
Summit	2 0 a. m.	24.000	58	45	23.935	45	44	92	W.	20	2.00	....	Stratus	4-4	Hidden	....		.....	.....	.....	Cloudy.
Base ..		27.344	61	50	27.253	51	47	75	S. E.	4	.08	....	Stratus	4-4	Hidden	....		.....	.....	.....	Cloudy.
Summit	3 0 a. m.	24.085	57	45	23.929	45	45	100	W.	22	2.42	....	Nimbus	4 4	Hidden	....		2.35 a. m.	.....	.....	Light rain.
Base .		27.347	61	51	27.265	51	49	89	S. E.	8	.32	....	Stratus	4-4	Hidden	....		.....	.....	.....	Cloudy.
Summit	4 0 a. m.	24.100	63	45	24.021	45	45	100	W.	26	3.58	....	Nimbus	4-4	Hidden	....		.....	.....	.....	Light rain.
Base .		27.370	60	51	27.285	51	49	86	S. E.	4	.08	....	Stratus	4-4	Hidden	....		.....	.....	.....	Cloudy.
Summit	5 0 a. m.	24.070	63	45	23.993	45	44	92	W.	25	3.12	....	Stratus	4 4	Hidden	....		.....	4.32 a. m.	.....	Cloudy.
Base .		27.360	60	50	27.275	50	48	86	S. E.	4	.08	....	Stratus	4 4	Hidden	....		.....	.....	.....	Cloudy.
Summit	6 0 a. m.	24.000	64	45	23.933	45	44	92	W.	14	.98	....	Stratus	4 4	Hidden	....		.....	.....	.....	Clearing.
Base .		27.360	64	51	27.275	51	49	89	S. E.	4	.08	....	Stratus	4 4	Cirrus	4 4	W.	.....	.....	.....	Cloudy.

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Summit	7	0 a. m.	24.011	74	45	24.010	45	44	94	W.	14	.02	....	Hazy	....	Cumulus	3-4	W.					
Base			27.320	69	50	27.308	56	52	75	E.	4	.08	....	Stratus	2-4	Cirrus	1-4	W.					
Summit	7	57 a. m.	24.000	70	45	24.016	45	44	92	W.	24	2.88	....	Hazy	....	Cumulus.	4-4	W.					Fair.
Base			27.300	61	50	27.210	56	52	75	S. E.	8	.32	....	Stratus	4-4	Hidden	....						Fair.
Summit	9	0 a. m.	23.985	65	45	23.912	45	44	92	W.	19	1.80	....	Stratus	4-4	Hidden	....					.03	Cloudy.
Base			27.298	62	53	27.206	53	56	62	E.	2	.02	....	Hazy	0	Cirrus	2-4	W.					Cloudy.
Summit	10	0 a. m.	23.980	65	47	23.907	47	46	92	W.	25	3.12	....	Stratus	4-4	Hidden	....						Fair.
Base			27.290	66	70	27.189	70	60	53	S. W.	4	.08	....	Hazy	0	Cirrus	2-4	W.					Cloudy.
Summit	11	0 a. m.	23.971	66	46	23.896	46	45	92	W.	34	5.78	....	Hazy	....	Cumulus.	2-4	W.					Fair.
Base			27.269	68	71	27.182	71	61	51	S.	6	.18	....	Cumulus.	1-4	Cirrus	2-4	W.					Fair.
Summit	12	0 m.	23.970	67	48	23.892	48	47	92	W.	40	8.00	....	Hazy	....	Cumulus.	2-4	W.					Fair.
Base			27.273	70	74	27.161	74	62	47	W.	8	.32	....	Cumulus.	1-4	Cirrus	2-4	W.					Fair.
Summit	1	0 p.m.	23.960	63	50	23.891	50	48	86	S. W.	30	4.50	....	Hazy	....	Cumulus.	2-4	S. W.					Fair.
Base			27.263	72	74	27.146	74	62	47	S.	6	.18	....	Stratus	3-4	Cirrus	1-4	W.					Cloudy.
Summit	2	0 p.m.	23.930	60	49	23.867	49	47	85	W.	20	2.00	....	Hazy	....	Cumulus.	2-4	W.					Fair.
Base			27.249	69	65	27.141	65	57	58	S. E.	4	.08	....	Stratus	2-4	Cirrus	1-4	W.					Cloudy.
Summit	3	0 p.m.	23.920	59	49	23.860	49	47	85	S.W.	29	4.20	....	Hazy	....	Cumulus.	3-4	S. W.					Fair.
Base			27.241	69	69	27.133	69	58	48	S. E.	4	.08	....	Stratus	2-4	Cirrus	1-4	W.					Cloudy.
Summit	4	0 p.m.	23.895	53	49	23.837	49	47	85	W.	36	6.48	....	Hazy	....	Cumulus.	3-4	W.					Fair.
Base			27.223	70	71	27.113	71	61	51	S.	4	.08	....	Stratus	2-4	Cirrus	1-4	W.					Cloudy.
Summit	4	57 p.m.	23.888	57	49	23.832	49	47	85	S.W.	30	4.50	....	Hazy	....	Cumulus.	3-4	S. W.					Fair.
Base			27.221	74	72	27.101	72	61	50	S.W.	4	.08	....	0	0	Cirrus	3-4	W.					Cloudy.
Summit	6	0 p.m.	23.874	56	49	23.820	49	46	77	W.	22	2.42	....	Hazy	....	Cirrus	1-4	W.					Fair.
Base			27.219	75	70	27.097	70	59	48	S.W.	8	.32	....	Stratus	1-4	Cirrus	2-4	W.					Fair.
Summit	7	0 p.m.	23.850	59	48	23.830	48	46	85	W.	40	8.00	....	Hazy	....	Cirro-cum.	2-4	W.					Fair.
Base			27.208	70	63	27.098	63	55	57	S.W.	4	.08	....	Stratus	1-4	Cirrus	1-4	W.					Fair.
Summit	8	0 p.m.	23.885	63	47	23.816	47	45	85	W.	24	2.88	....	Hazy	....	Cumulus.	1-4	W.					Fair.
Base			27.188	64	54	27.092	54	50	74	S. E.	4	.08	....	Stratus	1-4	Cirrus	1-4	W.					Fair.
Summit	9	0 p.m.	23.874	67	47	23.806	47	45	85	W.	36	6.48	....	Hazy	....	Stratus	2-4	W.					Fair.
Base			27.200	70	53	27.096	53	49	73	S. E.	8	.32	....	Stratus	2-4								Fair.
Summit	10	0 p.m.	23.875	70	47	23.791	47	45	85	W.	42	8.82	....	Hazy	....	Stratus	2-4	W.					Fair.
Base			27.199	70	52	27.090	52	48	73	S. E.	4	.08	....	Stratus	1-4	0	0	0					Fair.
Summit	11	22 p.m.	23.869	72	47	23.781	47	45	85	W.	31	4.80	....	Stratus	2-4	0	0	0					Fair.
Base			27.178	63	52	27.085	53	49	73	S. E.	4	.08	....	Stratus	2-4	0	0	0					Fair.
Summit	12	0 mid-night.	23.853	70	47	23.769	47	45	85	W.	37	6.84	....	Stratus	2-4	0	0	0					Fair.
Base			27.167	63	52	27.074	52	49	73	S. E.	4	.08	....	Stratus	2-4	0	0	0					Fair.

Meteorological record for May 28, 1873.

Summit	1	0 a. m.	23.794	68	47	23.717	47	46	92	W.	34	5.78	....	Stratus	4-4	Hidden	....						Threatening.
Base			27.165	65	53	27.067	53	50	79.8	S. E.	8	.32	....	Stratus	2-4	0	0	0					Fair.
Summit	2	0 a. m.	23.776	67	47	23.703	47	46	92	W.	56	12.50	....	Stratus	4-4	Hidden	....						Threatening.
Base			27.145	67	52.5	27.042	53	50	79.8	S. E.	4	.08	....	Stratus	2-4	0	0	0					Fair.
Summit	3	0 a. m.	23.775	68	48	23.700	48	48	100	W.	60	18.0	....	Stratus	4-4	Hidden	....						Threatening.
Base			27.140	66	53	27.046	53	50	79.8	S. E.	8	.32	....	Stratus	3-4	0	0	0					Cloudy.
Summit	4	0 a. m.	23.765	67	48	23.688	48	47	92	W.	56	15.68	....	Stratus	4-4	Hidden	....						Cloudy.
Base			27.130	63	52	27.037	52	50	86.1	S. E.	4	.08	....	Stratus	4-4	Hidden	....						Cloudy.
Summit	5	0 a. m.	23.800	72	47	23.713	47	46	92	W.	48	11.52	....	Stratus	4-4	Hidden	....						Cloudy.
Base			27.130	62	51.5	27.039	52	50	86.1	S. E.	8	.32	....	Hazy	....	Cirrus	2-4	0					Fair.

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Meteorological record for May 28, 1873—Continued.

(Hourly observations.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM.		Corrected barometer.	HYGROM.		Relative humidity.	WIND.				LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Remarks.
			Attached.	Exposed.		Dry bulb.	Wet bulb.		Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from—)	Commenced.	Ended.		
Summit	6 0 a. m.	23.800	71	48	23.715	48	47	92	W.	40	8.00	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.125	60	54	27.039	54	52	86.7	S. E.	4	.04	....	Hazy	.....	Cirrus	2-4	S. W.	.....	.....	.....	Fair.
Summit	7 0 a. m.	23.812	71	49	23.727	49	48	93	W.	30	4.50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.115	59	54	27.031	54	52	86.7	S. E.	8	.32	....	Stratus ...	1-4	Cirrus	1-4	S. W.	.....	.....	.....	Fair.
Summit	7 57 a. m.	23.800	69	48	23.719	48	47	92	W.	34	5.78	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.125	62	65	27.034	66	59	63.6	W.	4	.08	....	Stratus ...	3-4	Cirrus	1-4	W.	.....	.....	.....	Cloudy.
Summit	9 0 a. m.	23.790	64	48	23.719	48	48	100	W.	34	5.78	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.141	66	70	27.041	70	62	61.3	S. W.	12	.72	....	Stratus ...	3-4	Cirrus	1-4	W.	.....	.....	.....	Cloudy.
Summit	10 0 a. m.	23.780	61	47	23.716	47	46	92	W.	36	6.48	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.157	68	70	27.052	70	62	61.3	S.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	11 0 a. m.	23.780	60	48	23.718	48	47	92	W.	30	4.50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Clearing.
Base ...		27.129	69	70	27.021	70	62	61.3	S. W.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	10.45 a. m.	.....	.....	Cloudy.
Summit	12 0 m ..	23.785	59	47	23.725	47	47	100	W.	36	6.48	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.129	69	68	27.021	68	61	64.7	W.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	11.30 a. m.	.....	Cloudy.
Summit	1 0 p. m.	23.775	58	47	23.700	47	47	100	W.	34	5.78	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.129	69	68	27.021	68	60	60.1	S. W.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	2 0 p. m.	23.755	57	47	23.689	47	47	100	W.	38	7.22	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.120	69	68	27.012	68	60	60.1	N. W.	8	.32	....	Stratus ...	2-4	Cirrus	1-4	W.	.....	.....	.....	Cloudy.
Summit	3 0 p. m.	23.753	60	47	23.691	47	47	100	W.	36	6.48	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.108	69	70	27.000	70	61	57	N. W.	8	.32	....	Stratus ...	2-4	Cirrus	1-4	W.	.....	.....	.....	Cloudy.
Summit	4 0 p. m.	23.765	66	47	23.699	47	47	100	W.	30	4.50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.100	71	70.5	26.988	70.5	62	59.3	N. W.	8	.32	....	Stratus ...	1-4	Cirrus	2-4	W.	.....	.....	.....	Fair.
Summit	4 57 p. m.	23.785	70	47	23.702	47	47	100	W.	26	3.38	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.100	70	68	26.990	68	60	60.1	N. W.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	6 0 p. m.	23.790	74	47	23.699	47	47	100	W.	34	5.78	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.104	69	60	26.996	59	54	70.3	N. W.	6	.18	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	7 0 p. m.	23.735	70	46	23.652	46	46	100	W.	30	4.50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.120	68.5	64	27.024	64	57.5	65	W.	8	.32	....	Stratus ...	1-4	Cirrus	1-4	W.	.....	.....	.....	Fair.
Summit	8 0 p. m.	23.735	68	45	23.656	45	45	100	W.	36	6.48	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.120	66	57	27.020	57	53	75.2	N.	2	.02	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Summit	9 0 p. m.	23.740	64	44	23.631	44	44	100	W.	26	3.38	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Base ...		27.141	66	59	27.041	60	54	65.5	N. W.	0	0	....	Stratus ...	2-4	0	0	0	.....	.....	.....	Cloudy.
Summit	10 0 p. m.	23.715	63	43	23.641	43	42	100	W.	30	4.50	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	Clear.
Base ...		27.141	66	59	27.041	60	54	64.7	N. W.	0	0	....	Stratus ...	4-4	0	0	0	.....	.....	.....	Clear.

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Base																							
Summit	12	0 mid.																					
Base		night												Stratus	4-4	Hidden							Cloudy.
																							Fair.
																							Cloudy.
																							Cloudy.

Meteorological record for May 29, 1873.

Summit	1	0 a. m.	23.715	64	41	23.645	41	41	100	W.	50	12.50	....	Nimbus	4-4	Hidden	....	.....	12 22 a. m.	.....	.....	Light rain.
Base			27.165	64	57	27.069	57	52	69.2	N. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	2	0 a. m.	23.763	68	40	23.684	40	40	100	W.	52	13.52	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
Base			27.175	63	55	27.082	55	51	74.3	N. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	3	0 a. m.	23.786	71	40	23.701	40	40	100	W.	40	8.00	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
Base			27.175	62	54	27.084	54	51	74.3	N	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	4	0 a. m.	23.785	65	40	23.712	40	40	100	W.	36	6.48	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
Base			27.180	61	54	27.092	54	52	66.7	W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	5	0 a. m.	23.786	64	40	23.715	40	40	100	W.	38	7.22	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
Base			27.205	62	51	27.114	51	48	79	S. W.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	6	0 a. m.	23.800	67	40	23.723	40	40	100	W.	30	4.50	....	Stratus	4-4	Hidden	....	.....	5 26 a. m.	.....	.....	Cloudy.
Base			27.220	59	54	27.136	55	51.5	77.4	W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	7	0 a. m.	23.810	60	40	23.748	40	39	91	W.	31	4.80	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Base			27.225	59	54	27.141	54.5	51.5	80.3	W.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	7	57 a. m.	23.820	56	40	23.766	40	39	91	W.	28	3.92	....	Stratus	4-4	Hidden	....	.....	.....	.....	.26	Cloudy.
Base			27.250	59	56	27.166	56	52	74.7	N. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	9	0 a. m.	23.824	57	39	23.763	39	38	91	W.	29	4.20	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Base			27.273	60	58	27.186	58.5	53	67.2	N. W.	8	.32	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	10	0 a. m.	23.820	56	39	23.776	39	38	91	W.	29	4.20	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Base			27.277	61	61	27.187	61	53	55.3	W.	8	.32	....	Stratus	3-4	0	0	0	.....	.....	.....	Cloudy.
Summit	11	0 a. m.	23.845	61	39	23.781	39	39	100	W.	30	4.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Base			27.279	63.5	63	27.183	63	53	47	N. W.	8	.32	....	Stratus	3-4	0	0	0	.....	.....	.....	Cloudy.
Summit	12	0 m.	23.900	69	40	23.818	40	39	91	W.	24	2.88	....	0	0	Cumulus	4-4	W.	.....	.....	.....	Fair.
Base			27.270	64	62	27.173	62	54	56.1	N. W.	8	.32	....	0	0	Cumulus	2-4	W.	.....	.....	.....	Fair.
Summit	1	0 p. m.	23.915	68	41	23.835	41	40	91	W.	37	4.50	....	0	0	Cumulus	4-4	W.	.....	.....	.....	Fair.
Base			27.273	66	64	27.171	64	53	43.2	N.	8	.32	....	0	0	Cumulus	2-4	N. W.	.....	.....	.....	Fair.
Summit	2	0 p. m.	23.913	68	41	23.833	41	40	91	W.	24	2.88	....	0	0	Cumulus	2-4	W.	.....	.....	.....	Fair.
Base			27.273	67	68	27.168	68	57	46.7	N.	8	.32	....	0	0	Cumulus	2-4	N. W.	.....	.....	.....	Fair.
Summit	3	0 p. m.	23.905	66	41	23.830	41	40	91	W.	18	1.62	....	0	0	Cumulus	2-4	W.	.....	.....	.....	Fair.
Base			27.280	69	67.5	27.170	68	57	46.7	S. W.	8	.32	....	0	0	Cumulus	2-4	N. W.	.....	.....	.....	Fair.
Summit	4	0 p. m.	23.900	62	42	23.833	42	40	83	W.	20	2.00	....	0	0	Cumulus	1-4	W.	.....	.....	.....	Fair.
Base			27.280	72	67.5	27.163	68	57	46.7	N. W.	8	.32	....	0	0	Cir-cum	2-4	N. W.	.....	.....	.....	Fair.
Summit	4	57 p. m.	23.910	64	42	23.839	42	41	91	W.	20	2.00	....	0	0	Cumulus	1-4	W.	.....	.....	.....	Fair.
Base			27.285	72	65	27.171	65	55	46.8	W.	8	.32	....	0	0	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
Summit	6	0 p. m.	24.900	66	42	23.825	42	40	83	W.	24	2.88	....	0	0	Cumulus	1-4	W.	.....	.....	.....	Fair.
Base			27.270	74	66	27.149	66	54	40.5	W.	8	.32	....	0	0	Cirrus	1-4	W.	.....	.....	.....	Clear.
Summit	7	0 p. m.	23.905	62	42	23.838	42	41	91	W.	18	1.62	....	Hazy	....	Cumulus	1-4	W.	.....	.....	.....	Fair.
Base			27.245	68	57	27.140	57	52	69.2	N.	4	.08	....	Stratus	1-4	Cumulus	1-4	N. W.	.....	.....	.....	Fair.
Summit	8	0 p. m.	23.850	64	42	23.819	42	41	91	W.	12	.72	....	0	0	Cumulus	1-4	W.	.....	.....	.....	Fair.
Base			27.222	63	52	27.128	53	49	73.3	N. E.	4	.08	....	Stratus	1-4	0	0	0	.....	.....	.....	Clear.
Summit	9	0 p. m.	23.865	67	42	23.788	42	41	91	N. W.	14	.98	....	0	0	0	0	0	.....	.....	.....	Clear.
Base			27.226	63	51	27.133	52	48	72.7	N. E.	4	.08	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	Cloudy.

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Meteorological record for May 29, 1873—Continued.

(Hourly observations.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,698.3 feet. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM.		Corrected barometer.	HYGROM.		Relative humidity.	WIND.				LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Remarks.
			Attached.	Exposed.		Dry bulb.	Wet bulb.		Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from—)	Commen'd.	Ended.		
Summit	10 0 p. m.	23.865	67	42	23.788	42	41	91	N. W.	17	1.44	....	0	0	0	0	0	.....	.....	.....	Clear.
Base		27.202	61	51	27.114	52	48	72.7	N. E.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	11 22 p. m.	23.810	66	41	23.735	41	40	91	N. W.	36	6.48	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Base		27.239	60	51	27.123	52	48	72.7	N. E.	2	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	12 0 mid-night.	23.796	66	40	23.721	40	39	91	N. W.	36	6.48	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Base		27.200	60	54	27.114	55	51	74.3	E.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.

Meteorological record for May 30, 1873.

Summit	1 0 a. m.	23.792	71	40	23.707	40	39	91	N. W.	30	4.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Base		27.210	58	50	27.129	50	48.5	89.2	S.	4	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	2 0 a. m.	23.760	71	40	23.675	40	39	91	N. W.	28	3.92	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Threatening.
Base		27.212	58	48.5	27.131	48.5	47	88.8	S. W.	4	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	3 0 a. m.	23.750	70	40	23.667	40	40	100	N. W.	20	4.20	....	Nimbus	4-4	Hidden	....	.....	2 10 a. m.	.....	.....	Heavy rain.
Base		27.210	57	46.5	27.131	46.5	46	96.1	W.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Summit	4 6 a. m.	23.685	64	36	23.615	36	36	100	N.	40	8.00	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Heavy rain.
Base		27.210	56	43.5	27.134	43.5	43	95.8	N. W.	6	.18	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
Summit	5 0 a. m.	23.675	63	34	23.607	34	34	100	N.	50	12.50	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Heavy rain.
Base		27.215	56	40	27.139	40.5	40	95.5	W.	6	.18	....	Foggy	....	Hidden	....	.....	.....	.....	.....	Foggy.
Summit	6 0 a. m.	23.700	66	32	23.626	32	31	89	N.	60	18.00	....	Stratus	3-4	Hidden	....	.....	.....	5 12 a. m.	.....	Clearing.
Base		27.245	54	37	27.173	37	36.5	95.1	S. W.	4	.08	....	Foggy	....	Hidden	....	.....	.....	.....	.....	Foggy.
Summit	7 0 a. m.	23.710	72	28	23.625	28	26	77	N. W.	66	21.78	....	Cumulus	2-4	0	0	0	.....	.....	.....	Fair.
Base		27.269	59	37	27.206	37	35.5	76.5	S. E.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.45	Cloudy.
Summit	7 57 a. m.	23.740	72	26	23.651	25	24	70	N. W.	50	12.50	....	Cumulus	1-4	0	0	0	.....	.....	.....	Fair.
Base		27.288	51.5	36	27.222	39	37	81.6	N	4	.08	....	Nimbus	4-4	Hidden	....	.....	7 30 a. m.	.....	.....	Sleeting.
Summit	9 0 a. m.	23.711	71	29	23.628	26	24	70	N. W.	48	11.52	....	Cumulus	1-4	0	0	0	.....	.....	.....	Fair.
Base		27.241	54	39	27.170	39	36	72.6	N. E.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	8 20 a. m.	.....	Cloudy.
Summit	10 0 a. m.	23.672	64	41	23.590	41	39	91	N.	31	4.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Base		27.224	54	41	27.151	41	38	77	N. W.	31	4.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
																					Cloudy.
																					Cloudy.
																					Cloudy.
																					Cloudy.
																					Fair.

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Meteorological record for May 31, 1873.

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Meteorological record for May 31, 1873—Continued.

(Hourly observations.)

NOTE.—Elevation of barometer at summit above sea-level, 6,285.4 feet. Elevation of barometer at base above sea-level, 2,898.3 feet. Barometer readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM.		Corrected barometer.	HYGROM.		WIND.				LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Remarks.
			Attached.	Exposed.		Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction. (moving from—)	Commenced.	Ended.		
Summit	11 0 a. m.	24.036	59	28	23.976	28	26	78	N. W.	40	8.00	....	Hazy	....	0	0	0			....	Clear.
Base		27.570	55	46	27.495	47	38	34.4	W.	8	.32	....	0	0	0	0	0			....	Clear.
Summit	12 0 m.	24.026	59	30	23.966	30	28	78	N. W.	36	6.48	....	Hazy	....	0	0	0			....	Clear.
Base		27.571	57	50	27.491	51	40	37.3	N. W.	8	.32	....	0	0	0	0	0			....	Clear.
Summit	1 0 p. m.	24.032	56	31	23.978	31	28	68	N. W.	28	3.92	....	Hazy	....	0	0	0			....	Clear.
Base		27.559	60	54	27.472	54	43	32	N.	8	.32	....	0	0	0	0	0			....	Clear.
Summit	2 0 p. m.	24.060	60	32	23.997	32	29	69	N. W.	30	4.50	....	Hazy	....	0	0	0			....	Clear.
Base		27.560	62	54.5	27.468	54.5	43	30	N. W.	8	.32	....	0	0	0	0	0			....	Clear.
Summit	3 0 p. m.	24.070	70	33	23.986	33	30	69	W.	24	2.88	....	Hazy	....	0	0	0			....	Clear.
Base		27.566	63.5	55.5	27.464	56	45	34.6	N.	8	.32	....	0	0	0	0	0			....	Clear.
Summit	4 0 p. m.	24.099	67	33	24.021	33	30	69	W.	24	2.88	....	Hazy	....	0	0	0			....	Clear.
Base		27.566	65	55	27.460	56	45	34.6	W.	10	.50	....	Hazy	....	0	0	0			....	Clear.
Summit	4 57 p. m.	24.070	64	33	23.999	33	30	69	W.	18	1.62	....	Hazy	....	0	0	0			....	Clear.
Base		27.563	68	55	27.456	55.5	44.5	34	W.	8	.32	....	Hazy	....	0	0	0			....	Clear.
Summit	6 0 p. m.	24.085	70	32	24.001	32	29	69	W.	20	2.00	....	Smoke	....	0	0	0			....	Clear.
Base		27.563	67	54	27.458	54	43.5	34.8	W.	8	.32	....	Hazy	....	0	0	0			....	Clear.
Summit	7 0 p. m.	24.100	71	31	24.014	31	29	79	W.	24	2.88	....	Smoke	....	0	0	0			....	Clear.
Base		27.564	63	49.5	27.468	49.5	42.5	51	W.	4	.08	....	Hazy	....	0	0	0			....	Clear.
Summit	8 0 p. m.	24.10	69	31	24.018	31	29	79	W.	20	2.00	....	Smoke	....	0	0	0			....	Clear.
Base		27.555	58	43.5	27.472	44.5	38	49	N. E.	4	.08	....	0	0	0	0	0			....	Clear.
Summit	9 0 p. m.	24.080	63	31	24.011	31	28	68	W.	16	1.28	....	Hazy	....	0	0	0			....	Clear.
Base		27.551	60	41.5	27.464	42	37	57.7	N. E.	8	.32	....	0	0	0	0	0			....	Clear.
Summit	10 0 p. m.	24.080	61	32	24.015	32	30	79	W.	14	.98	....	Hazy	....	0	0	0			....	Clear.
Base		27.549	59	42	27.464	41	37	65.3	N. E.	4	.04	....	0	0	0	0	0			....	Clear.
Summit	11 0 p. m.	24.090	70	31	24.006	31	29	79	W.	18	1.62	....	Hazy	....	0	0	0			....	Clear.
Base		27.545	56	41.5	27.467	41	36.5	60.9	E.	4	.08	....	0	0	0	0	0			....	Clear.
Summit	12 0 mid.	24.060	66	31	24.015	31	29	78	W.	20	2.00	....	Hazy	....	0	0	0			....	Clear.
Base	night.	27.540	55	41	27.460	41.6	37	61.4	E.	4	.08	....	Stratus	1-4	0	0	0			....	Clear.

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(Hourly observations.)

NOTE.—Station No. 1, Summit of Mount Washington. Elevation of barometer above sea-level, 6 285.4 feet; Station No. 2, Above Jacob's Ladder. Elevation of barometer above sea-level, 5,553.3 feet; Station No. 3, Waumbeck House. Elevation of barometer above sea level, 4,058.7; Station No. 4, Base of Mount Washington. Elevation of barometer above sea-level, 2,838.3. The elevation of barometers above sea-level at Stations Nos. 2, 3, and 4 were calculated from the synchronous barometrical observation taken during the month of June, 1873. Barometer-readings corrected for temperature and instrumental error only.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM Dry bulb.	HYGROM Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Comm'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	a. m.																				
Station 1...	1 0	24.065	65	31	23.992	31	29	79	W.	18	1.62	....	0	0	0	0	0	.....	.....	.....	Clear.
2...		24.771	58.5	35.5	24.633	35	33	79.7	W.	8	.32	....	0	0	0	0	0	.....	.....	.....	Clear.
3...		26.257	44	38	26.230	38	36	81.1	E.	6	.18	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
4...		27.521	55	40	27.446	41	38	73.8	N. E.	4	.08	....	Haze	....	0	0	0	.....	.....	.....	Clear.
Station 1...	2 0	24.041	65	31	23.972	31	29	79	W.	18	1.62	....	Haze	....	0	0	0	.....	.....	.....	Clear.
2...		24.765	61.5	35	24.719	34.5	32.5	79.5	W.	12	.72	....	0	0	0	0	0	.....	.....	.....	Clear.
3...		26.245	43	37	26.222	37	35	80.7	N. E.	2	.02	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
4...		27.512	53	39	27.442	40	36	64.5	E.	4	.08	....	Haze	....	0	0	0	.....	.....	.....	Clear.
Station 1...	3 0	24.000	57	31	23.949	31	29	79	W.	30	4.50	....	0	0	Cirro-st	1-8	0	.....	.....	.....	Clear.
2...		24.743	61	36	24.698	35.5	33	75	W.	16	1.28	....	Stratus	1-4	0	0	0	.....	.....	.....	Clear.
3...		26.225	42	38	26.205	38	36	81.1	0	0	0	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
4...		27.482	53	39	27.412	40	36	64.5	E.	5	.12	....	Haze	....	0	0	0	.....	.....	.....	Clear.
Station 1...	4 0	23.985	58	31	23.927	31	29	79	W.	36	6.48	....	0	0	0	0	0	.....	.....	.....	Clear.
2...		24.735	64.5	35.5	24.784	35	33	79.7	W.	20	2.00	....	Stratus	1-4	0	0	0	.....	.....	.....	Fair.
3...		26.215	42	38	26.195	38	36	81.1	N. E.	2	.02	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
4...		27.472	50.5	38.5	27.408	40	37	73.2	E.	5	.12	....	Haze	....	0	0	0	.....	.....	.....	Clear.
Station 1...	5 0	24.985	64	32	23.914	32	30	79	W.	34	5.78	....	0	0	Cirrus	1-8	0	.....	.....	.....	Clear.
2...		24.733	65	35.5	24.681	35.5	33.5	80	W.	25	3.12	....	Stratus	1-4	Cirrus	1-4	0	.....	.....	.....	Fair.
3...		26.215	42	39	26.195	39	37	81.6	N. W.	1	.01	....	Hazy	....	Cirrus	1-4	0	.....	.....	.....	Clear.
4...		27.473	50	39	27.410	39.5	36.5	72.9	E.	5	.12	....	Stratus	1-4	0	0	0	.....	.....	.....	Fair.
Station 1...	6 0	24.005	71	33	23.919	33	31	79	W.	40	8.00	....	0	0	Cirrus	1-4	W.	.....	.....	.....	Fair.
2...		24.715	61	37	24.672	36.5	34.5	80.5	W.	32	5.12	....	Hazy	....	Cirrus	1-4	W. s.	.....	.....	.....	Fair.
3...		26.215	42	39	26.195	39	37	81.6	N. W.	1	.01	....	Hazy	....	Cirrus	1-4	0	.....	.....	.....	Clear.
4...		27.473	51	42.5	27.408	43	38	58.7	E.	5	.12	....	Stratus	1-4	0	0	0	.....	.....	.....	Fair.
Station 1...	7 0	23.975	76	34	23.878	34	31	69	W.	50	12.50	....	Stratus	1-4	0	0	0	.....	.....	.....	Clear.
2...		24.685	53.5	37	24.658	36.5	34	75.6	W.	29	4.20	....	Hazy	....	Cirrus	1-4	0	.....	.....	.....	Fair.
3...		26.200	41	41	26.182	41	38	73.8	W.	6	.18	....	Hazy	....	Hazy	....	.....	.....	.....	.....	Clear.
4...		27.470	52	47	27.402	48	42	56.3	E.	4	.08	....	Stratus	2-4	0	0	0	.....	.....	.....	Fair.

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Meteorological record for June 1, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	a. m.																				
Station 1		23.972	69	34	23.890	34	31	69	W.	50	12.50	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
2	7 57	24.690	65.5	38.5	24.637	38	35	71.9	W.	20	2.00	....	Stratus	1-4	0	0	0	.....	.....	.....	Fair.
3		26.190	42.5	45	26.168	45	41	68.4	W.	12	.72	....	Hazy	....	Cirrus	1-4	0	.....	.....	.....	Clear.
4		27.462	56	51	27.384	51.5	42.5	40.5	W.	8	.32	....	Stratus	1-4	0	0	0	.....	.....	.....	Fair.
Station 1		23.958	68	36	23.878	36	31	53	W.	46	11.52	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
2	9 0	24.620	64	41	24.640	41	36	53.4	W.	35	6.12	....	Stratus	1-4	Cirrus	1-4	0	.....	.....	.....	Fair.
3		26.190	46	47	26.160	47	41	55.4	N. W.	10	.50	....	Hazy	....	Cirrus	1-4	N. W.	.....	.....	.....	Clear.
4		27.449	61	54	27.359	54.5	43	29.8	N. W.	10	.50	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
Station 1		23.950	65	36	23.877	36	31	53	W.	36	6.48	....	Hazy	....	0	0	0	.....	.....	.....	Clear.
2	10 0	24.664	58.5	43	24.626	43	37.5	55	W.	46	10.58	....	Stratus	1-4	Cirrus	2-4	0	.....	.....	.....	Fair.
3		26.189	46	50	26.155	50	43	51.5	W.	2	.02	....	Hazy	....	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
4		27.459	56	57	27.357	58	46	31.8	N. W.	10	.50	....	0	0	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
Station 1		23.100	65	38	23.827	38	32	46	W.	50	12.50	....	Hazy	....	Cirrus	1-4	W.	.....	.....	.....	Fair.
2	11 0	24.653	58	45	24.610	44.5	39	56.5	W.	36	6.48	....	Stratus	1-4	Cirrus	2-4	W. s.	.....	.....	.....	Fair.
3		26.180	50	52	26.141	52	45	53.5	W.	12	.72	....	Hazy	....	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
4		27.430	64	59	27.333	60	47	29.3	N. W.	12	.72	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
Station 1		23.930	63	40	23.861	40	35	56	W.	35	6.12	....	Hazy	....	Cirrus	1-4	W.	.....	.....	.....	Fair.
2	12 m.	24.633	56	47	24.601	46	40.5	58	W.	36	6.48	....	Stratus	1-4	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
3		26.160	51	54	26.119	54	46	49.3	N. W.	12	.72	....	Hazy	....	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
4		27.393	64	61.5	27.296	62	49	31.7	N. W.	12	.72	1.55	Stratus	1-4	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
	p. m.																				
Station 1		23.938	64	40	23.864	47	35	56	W.	50	12.50	....	Hazy	....	Cirrus	1-4	W.	.....	.....	.....	Fair.
2	1 0	24.640	60	47	24.599	46.5	40.5	54.8	W.	42	8.82	....	Stratus	1-4	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
3		26.150	53	53	26.104	53	44	42.3	N. W.	12	.72	....	Hazy	....	Cirrus	3-4	N. W.	.....	.....	.....	Fair.
4		27.387	66	63	27.285	63	48	21.8	N. W.	16	1.28	....	0	0	Cir.-strat	4-4	N. W.	.....	.....	.....	Cloudy.
Station 1		23.930	66	40	23.855	40	35	56	W.	46	10.58	....	Hazy	....	Cumulus	3-4	W.	.....	.....	.....	Cloudy.
2	2 0	24.624	58	48	24.567	47.5	41	52.3	W.	36	6.48	....	Stratus	3-4	0	0	0	.....	.....	.....	Fair.
3		26.140	53	54	26.094	54	45	43.4	N. W.	10	.50	....	Hazy	....	Cirrus	3-4	N. W.	.....	.....	.....	Fair.
4		27.370	67	64.5	27.265	65	52	33.1	N. W.	12	.72	....	0	0	Cir.-strat	4-4	N. W.	.....	.....	.....	Cloudy.
Station 1		23.905	69	41	23.843	41	36	44	W.	46	11.52	....	Hazy	....	Cirrus	2-4	W.	.....	.....	.....	Fair.
2	3 0	24.586	58	50	24.552	49.5	43	54.3	W.	46	11.52	....	Stratus	1-4	Cirrus	2-4	W.	.....	.....	.....	Fair.
3		26.130	54	57	26.082	57	47	41.1	N.	14	.98	....	Hazy	....	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
4		27.350	67	65	27.274	60	54	31.8	N. W.	14	.98	....	Haze	....	Cirrus	3-4	N. W.	.....	.....	.....	Fair.
Station 1		23.900	70	42	23.816	42	35	42	W.	42	8.82	....	Smoky	....	Cumulus	1-4	W.	.....	.....	.....	Fair.
2	4 0	24.566	58	50	24.551	50	42	48.2	W.	51	13.00	....	Stratus	1-4	Cirrus	2-4	W.	.....	.....	.....	Fair.
3		26.102	58	58	26.044	58	47	37.6	N. W.	11	.66	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	Fair.
4		27.314	70	66	27.220	66	51.5	19.5	W.	16	1.28	....	Haze	....	Cirrus	3-4	N. W.	.....	.....	.....	Fair.

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Station 1			23. 885	68	49	23. 805	49	35	42	W.	50	12. 50	....	Smoky	....	Cirrus	1-4	W.				
2	4	57	24. 558	55	48. 5	24. 522	48	41	49. 4	W.	47	11. 04	....	Stratus	1-4	Cirrus	2-4	N. W.				Fair.
3			26. 105	64	55. 5	26. 034	56	45	34. 6	N. W.	12	.72	....	Hazy	....	Cirro-cum	3-4	N. W.				Fair.
4			27. 320	69	63. 5	27. 210	64	49. 5	27. 3	W.	12	.72	....	Stratus	2-4	Cirrus	1-4	N. W.				Fair.
Station 1			23. 886	67	41	23. 808	41	34	41	W.	48	11. 52	....	Smoky	....	Cirrus	1-4	W.				Fair.
2	6	0	24. 550	57	47	24. 516	47. 5	40	34. 4	W.	41	8. 40	....	Stratus	1-4	Cirrus	1-4	W.				Fair.
3			26. 105	63	54	26. 036	54	44	37. 6	N. W.	8	.32	....	Hazy	....	Cumulus	1-4	N. W.				Fair.
4			27. 320	66	61	27. 218	61. 5	48	28. 8	N. W.	12	.72	....	Stratus	1-4	Cirrus	1-4	N. W.				Fair.
Station 1			23. 878	67	40	23. 798	40	35	56	W.	34	5. 76	....	Smoky	....	Cirrus	1-4	W.				Fair.
2	7	0	24. 580	56	46. 5	24. 548	47	40. 5	51. 8	W.	52	13. 52	....	Stratus	2-4	Cirrus	1-4	W.				Fair.
3			26. 125	67	54	26. 047	54	44	37. 6	N. W.	8	.32	....	Hazy	....	Cirrus	1-4	N. W.				Fair.
4			27. 333	65	60	27. 233	60	47	29. 3	W.	16	1. 28	....	Stratus	1-4	Cirrus	1-4	0				Fair.
Station 1			23. 825	68	39	23. 746	39	35	63	W.	20	2. 03	....	Hazy	....	Stratus	4-4	W.				Cloudy.
2	8	0	24. 584	57	44	24. 550	44	39. 5	63. 6	W.	34	5. 78	....	Nimbus	3-4	Hidden	....	....				Light rain.
3			26. 129	65	51	26. 055	51	42	39. 9	N.	12	.72	....	Nimbus	3-4	Hidden	....	....	8	0 p.m.		Light rain.
4			27. 315	68	58	27. 208	58	46. 5	37. 9	N.	2	.02	....	Stratus	3-4	Cirrus	1-4	0				Cloudy.
Station 1			23. 930	65	38	23. 857	38	34	63	W.	16	1. 28	....	Hazy	....	Nimbus	4-4	W.	8	6 p.m.		Light rain.
2	9	0	24. 590	57	43	24. 556	43	38. 5	62. 7	W.	34	5. 78	....	Nimbus	3-4	Hidden	....	....	8	8 p.m.	8 25 p.m.	Threatening.
3			26. 123	67	49	26. 045	49	41	43. 9	N. W.	7	.24	....	Stratus	3-4	Hidden	....	....			8 15 p.m.	Cloudy.
4			27. 330	64	56	27. 233	56. 5	46	37. 9	N.	2	.02	....	Stratus	3-4	0	0	0				Cloudy.
Station 1			23. 920	64	38	23. 849	38	33	54	W.	20	2. 00	....	Hazy	....	Nimbus	4-4	W.				Light rain.
2	10	0	24. 596	56	42. 5	24. 564	42. 5	38	62. 3	W.	36	6. 48	....	Nimbus	4-4	Hidden	....	....				Threatening.
3			26. 115	63	50	26. 046	50	43	51. 5	N. W.	16	1. 28	....	Nimbus	4-4	Hidden	....	....	10	0 p.m.		Light rain.
4			27. 3	0 64	56	27. 233	56. 5	46	37. 9	W.	4	.08	....	Stratus	3-4	0	0	0				Cloudy.
Station 1			23. 900	64	37	23. 829	37	34	62	W.	29	4. 20	....	Hazy	....	Stratus	4-4	W.			10 10 p.m.	.16	Cloudy.
2	11	22	24. 597	54	41. 5	24. 569	41. 5	38. 5	73. 9	W.	20	2. 00	....	Nimbus	3-4	Hidden	....	....				.09	Cloudy.
3			26. 119	61	48	26. 055	48	42	56. 3	N. W.	13	.84	....	Hazy	....	Cirrus	3-4	N. W.			10 15 p.m.		Fair.
4			27. 335	62	55	27. 243	55. 5	46	42. 2	N. W.	8	.32	....	Stratus	2-4	0	0	0					Fair.
Station 1			23. 920	63	37	23. 851	37	34	62	W.	30	4. 50	....	Hazy	....	Stratus	4-4	W.					Cloudy.
2	12	0	24. 605	57	39	24. 571	39	37. 5	86. 1	N. W.	18	1. 62	856	Nimbus	4-4	Hidden	....	....					Cloudy.
3	mid-		26. 109	57	45	26. 054	45	41	68. 4	N.	6	.18	189	Hazy	....	Cirrus	3-4	N. W.					Fair.
4	night.		27. 335	61	53	27. 245	53	45. 5	51. 3	N. W.	4	.08	....	Stratus	1-4	0	0	0					Fair.

44 W

Meteorological record for June 2, 1873.

	a.	m.																										
Station 1			23. 913	61	34	23. 848	34	31	69	N.	18	1. 62	....	Hazy	....	Stratus	2-4	N.				Fair.
2	1	0	24. 610	60	37	24. 569	37	34	77. 2	N. W.	15	1. 12	....	Stratus	2-4	0	0	0				Fair.
3			26. 110	57	43	26. 055	43. 5	40	71. 3	N.	6	.18	....	Stratus	1-4	0	0	0				Fair.
4			27. 352	59	47	27. 267	48	43	63. 1	N. E.	2	.02	....	Stratus	2-4	0	0	0				Fair.
Station 1			23. 890	62	33	23. 823	33	30	69	N.	26	3. 38	....	Hazy	....	Cumulus	1-8	N.				Fair.
2	2	0	24. 615	60	34. 5	24. 574	34	31	71. 2	N.	16	1. 28	....	Stratus	1-4	0	0	0				Fair.
3			26. 120	59	39. 5	26. 060	40	36. 5	68. 8	N.	5	.12	....	Stratus	1-4	0	0	0				Fair.
4			27. 362	59. 5	45	27. 276	45. 5	41	65. 0	N. W.	2	.02	....	0	0	0	0	0				Clear.
Station 1			23. 880	67	30	23. 803	30	28	78	N.	30	4. 50	....	Stratus	1-16	0	0	0				Clear.
2	3	0	24. 610	60	32. 5	24. 569	32	29	69. 4	N.	16	1. 28	....	0	0	0	0	0				Clear.
3			26. 120	57	38	26. 065	38. 5	35	67. 7	N.	6	.18	....	0	0	0	0	0				Clear.
4			27. 365	57	40. 5	27. 285	41	37. 5	69. 5	N.	3	.04	....	Hazy	....	Hidden	....	0.				Cloudy.

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Meteorological record for June 2, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM.		HYGROM.		Corrected barometer.	Relative humidity.	WIND.			LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Remarks.
			Attached.	Exposed.	Dry bulb.	Wet bulb.			Direction.	Velocity per hour.	Pressure per sq. ft.	Kind.	Amount.	Kind.	Amount.	Direction (moving from—)	Commen'd.	Ended.		
	a. m.																			
Station 1	4 0	23.875	72	28	28	25	23.788	67	N.	28	3.92	Stratus	1-8	0	0	0	.....	.....	.....	Clear.
2		24.610	56	30	28.5	27	24.578	72.5	N.N.E.	19	1.80	Stratus	1-4	0	0	0	.....	.....	.....	Fair.
3		26.138	56	35.5	30	28	25.965	63.7	Hazy	6	.18	Hazy	1-4	0	0	0	.....	.....	.....	Clear.
4		27.362	55	38.5	36	32	27.286	72.6	N.	3	.04	Stratus	1-4	0	0	0	.....	.....	.....	Fair.
Station 1	5 0	23.880	70	28	24	23	23.797	57	N.	3	6.48	Stratus	1-8	0	0	0	.....	.....	.....	Clear.
2		24.610	53	29.5	26	25	24.586	66.5	N.	19	1.60	Stratus	1-4	0	0	0	.....	.....	.....	Clear.
3		26.152	55	33.5	36	31	25.101	74.1	N.	5	.12	Hazy	.....	0	0	0	.....	.....	.....	Clear.
4		27.412	54	37	33	30	27.339	73	N.	1	.01	Stratus	1-4	0	0	0	.....	.....	.....	Fair.
Station 1	6 0	23.915	53	29	24	23	23.819	70	N.	56	16.82	Hazy	.....	0	0	0	.....	.....	.....	Clear.
2		24.615	53	31	29	27	24.569	71	N. W.	46	10.62	Hazy	.....	0	0	0	.....	.....	.....	Fair.
3		26.151	53	32.5	30	30	25.965	70.3	N. E.	29	3.04	Hazy	.....	0	0	0	.....	.....	.....	Clear.
4		27.432	52	37.5	34	32	27.363	58.6	N.	7	.24	Stratus	1-4	0	0	0	.....	.....	.....	Fair.
Station 1	7 0	23.925	70	30	27	26	23.841	68	N. W.	43	9.24	Hazy	.....	0	0	0	.....	.....	.....	Clear.
2		24.603	52	31.5	31	29	24.581	78.8	N.	23	2.64	Stratus	1-4	0	0	0	.....	.....	.....	Clear.
3		26.169	51	34	33	31	26.101	80.0	N.	4	.08	Hazy	.....	0	0	0	.....	.....	.....	Clear.
4		27.434	52	41.5	36	36	27.364	80.0	N. W.	1	.00	Stratus	1-4	0	0	0	.....	.....	.....	Fair.
Station 1	7 57	23.920	67	30	34	30	23.843	80	N. W.	36	6.48	Hazy	.....	0	0	0	.....	.....	.....	Clear.
2		24.648	52	33	32	30	24.594	79.4	W.	20	2.00	Stratus	1-4	0	0	0	.....	.....	.....	Clear.
3		26.170	51	35.5	36	32	25.986	61.0	N. E.	6	.18	Stratus	1-4	0	0	0	.....	.....	.....	Clear.
4		27.440	55	43.5	37	35	27.365	57.2	E.	6	.18	Stratus	1-4	0	0	0	.....	.....	.....	Fair.
Station 1	9 0	23.920	72	33	32	30	23.833	44	N. W.	6	9.68	Hazy	.....	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
2		24.670	63	39	39	39	24.625	69.4	N.	17	1.44	Stratus	1-4	0	0	0	.....	.....	.....	Clear.
3		26.170	50.5	45.5	37	36	25.990	54.7	N. E.	6	.18	Stratus	1-4	0	0	0	.....	.....	.....	Clear.
4		27.444	55	46	39	37	27.309	47	N.	6	.18	0	.....	Cirrus	1-4	W.	.....	.....	.....	Clear.
Station 1	10 0	23.955	62	32	37	35	23.839	50	W.	31	4.80	Hazy	.....	Cir.-strat	1-4	W.	.....	.....	.....	Fair.
2		24.660	57	33	34	33	24.613	74.4	N. W.	17	1.44	Stratus	1-4	Cirrus	1-4	W.	.....	.....	.....	Fair.
3		26.187	51	41	35	33	25.996	48.2	N. W.	6	.18	Hazy	.....	0	0	0	.....	.....	.....	Fair.
4		27.430	55	43	40	39	27.304	32.2	W.	8	.32	0	.....	0	0	0	.....	.....	.....	Clear.
Station 1	11 0	23.923	57	34	39	37	23.779	31	N. W.	30	4.20	Hazy	.....	Cirrus	1-4	W.	.....	.....	.....	Clear.
2		24.650	51	39	37	37	24.629	41.6	N.	30	4.50	Stratus	1-4	Cir.-strat	1-4	W.	.....	.....	.....	Fair.
3		26.186	57	44	41	37	25.996	44.6	N. W.	7	.24	Hazy	.....	0	0	0	.....	.....	.....	Clear.
4		27.430	56	51	53	50	27.331	29.2	W.	12	.72	0	.....	0	0	0	.....	.....	.....	Clear.
Station 1	19 m.	23.928	55	40	40	39	23.776	53.5	W.	23	3.02	Hazy	.....	Cirrus	1-4	W.	.....	.....	.....	Clear.
2		24.651	55	46	46	45	24.600	53.4	W.	23	3.02	Smoky	.....	Cirrus	1-4	W.	.....	.....	.....	Fair.
3		26.155	58	46	46	46	25.971	40	N. W.	14	.98	Stratus	1-4	0	0	0	.....	.....	.....	Fair.
4		27.449	57	54	49	47	27.340	30.4	N. W.	14	.98	Stratus	0	0	0	0	.....	.....	.....	Clear.

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| Station | P. m. | | |

Meteorological record for June 3, 1873.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	a. m.																				
Station 1		23.090	43	27	23.964	27	26	88	N.	20	2.00	....	Dense haze	....	Stratus	3-4	N.	.....	.....	.....	Cloudy.
2	1 0	24.680	35	32	24.650	32	28.5	63.9	N.E.	8	.32	....	Stratus	1-4	0	0	0	.....	.....	.....	Fair.
3		26.220	60	39	26.158	39	34.5	58.6	S.E.	5	.12	....	Stratus	1-4	0	0	0	.....	.....	.....	Clear.
4		27.452	52	39	27.382	40	35	55.7	N.	2	.02	....	0	0	Cirro-cum.	2-4	0	.....	.....	.....	Fair.
Station 1		23.920	50	28	23.949	28	26	77	N.	16	1.28	....	Dense haze	....	Stratus	3-4	N.	.....	.....	.....	Cloudy.
2	2 0	24.687	58	32.5	24.650	32	28	59.4	N.E.	8	.32	...	Stratus	1-4	0	0	0	.....	.....	.....	Fair.
3		26.205	55	37.5	26.154	38	34	62.8	E.	2	.02	....	Stratus	1-4	0	0	0	.....	.....	.....	Fair.
4		27.454	51	38	27.389	39	34	54.7	N.E.	4	.08	....	Stratus	2-4	0	0	0	.....	.....	.....	Fair.
Station 1		23.985	52	29	23.940	29	26	67	0	0	0	....	Hazy	....	Stratus	3-4	N.	.....	.....	.....	Cloudy.
2	3 0	24.690	60	32	24.649	32	28	59.4	N.E.	10	.50	....	Stratus	1-4	Cirrus	1-4	N.s.	.....	.....	.....	Fair.
3		26.200	54	36	26.152	36	32	61.0	0	0	0	....	Hazy	....	Cirro-strat.	2-4	N.W.	.....	.....	.....	Fair.
4		27.402	50	36	27.399	37	34	71.2	N.W.	3	.04	....	Stratus	3-4	Hidden	....	....	.....	.....	.....	Cloudy.
Station 1		23.988	55	29	23.936	29	26	67	0	0	0	....	Hazy	....	Stratus	3-4	N.	.....	.....	.....	Cloudy.
2	4 0	24.700	61	33	24.657	32.5	28	55.2	N.	10	.50	....	Stratus	2-4	Cirrus	1-4	N.s.	.....	.....	.....	Smoky.
3		26.227	55	36	26.176	36.5	33	66.1	0	0	0	....	Hazy	....	Cirro-strat.	2-4	N.W.	.....	.....	.....	Fair.
4		27.462	52	37	27.394	38	35.5	76.5	N.E.	3	.04	....	Stratus	1-4	Cirrus	2-4	N.W.	.....	.....	.....	Cloudy.
Station 1		24.022	65	29	23.949	29	26	67	N.	6	.18	....	Hazy	....	Stratus	3-4	N.W.	.....	.....	.....	Cloudy.
2	5 0	24.715	65	33	24.663	32.5	29	64.9	N.	4	.08	....	Stratus	3-4	Cirrus	1-4	N.s.	.....	.....	.....	Smoky.
3		26.230	53	36	26.184	36.5	32.5	61.4	0	0	0	....	Hazy	....	Cirrus	3-4	N.W.	.....	.....	.....	Fair.
4		27.472	48	36	27.414	37	34	71.2	N.	3	.04	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Cloudy.
Station 1		24.032	68	30	23.952	30	27	68	N.W.	8	.32	....	Hazy	....	Stratus	4-4	N.W.	.....	.....	.....	Cloudy.
2	6 0	24.715	63	34	24.667	33.5	30	65.9	N.	6	.18	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Smoky.
3		26.233	52	38	26.189	38.5	34.5	63.2	0	0	0	....	Hazy	....	Hazy	....	....	.....	.....	.....	Fair.
4		27.474	40	40	27.414	41	36	56.7	N.E.	2	.02	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Cloudy.
Station 1		24.035	64	32	23.964	32	28	60	N.W.	12	.72	....	Hazy	....	Stratus	4-4	....	.....	.....	.....	Cloudy.
2	7 0	24.740	70	35.5	24.677	35	31	62.8	N.	12	.72	....	Stratus	4-4	0	0	....	.....	.....	.....	Cloudy.
3		26.238	56	39	26.185	40	36	64.5	0	0	0	....	Hazy	....	Cirrus	3-4	....	.....	.....	.....	Fair.
4		27.490	50	43	27.427	43	37.5	55	N.E.	1	.00	....	Hazy	....	Cirrus	3-4	....	.....	.....	.....	Cloudy.
Station 1		24.040	62	32	23.973	32	29	60	N.W.	6	.18	....	Hazy	....	Stratus	4-4	....	.....	.....	.....	Cloudy.
2	7 57	24.738	57	34.5	24.704	34	31	71.2	N.	6	.18	...	Stratus	4-4	Hidden	....	....	.....	.....	.....	Cloudy.
3		26.250	55	40	26.199	40.5	36.5	64.9	E.	1	.01	....	Hazy	....	Hazy	....	....	.....	.....	.....	Fair.
4		27.492	51	46	27.427	46	39	47.1	0	0	0	....	Hazy	....	Cirrus	3-4	N.W.	.....	.....	.....	Cloudy.
Station 1		24.044	65	33	23.971	34	29	61	0	0	0	....	Hazy	....	Stratus	4-4	....	.....	.....	.....	Cloudy.
2	9 0	24.738	61.5	38	24.694	37	33	61.9	W.	4	.16	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Cloudy.
3		26.250	54.5	42.5	26.200	42.5	37.5	58.2	N.E.	1	.01	....	Hazy	....	Hazy	....	....	.....	.....	.....	Clear.
4		27.500	54	48	27.427	48	40	42.6	W.	4	.08	....	Hazy	....	Cirro-strat.	4-4	....	.....	.....	.....	Cloudy.

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Meteorological record for June 3, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	p. m.																				
Station 1	11 22	23.965	64	37	23.894	37	33	62	W.	10	.50	....	Stratus	3-4	Cirrus	1-4	W.	.....	.....	.....	Cloudy.
2		24.643	63	41.5	24.595	41.5	36	53.4	S.W.	4	.08	....	Stratus	2-4	Cirrus	1-4	N.W.	.....	.....	.....	Smoky.
3		26.112	57	43.5	26.057	43.5	39.5	67.3	S.W.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.348	56	44	27.270	44	39.5	63.7	S.	4	.08	....	Stratus	2-4	Cirrus	2-4	.....	.....	.....	.....	Cloudy.
Station 1	12 0 midnight.	23.965	65	37	23.892	37	33	62	W.	12	.72	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.620	65	41	24.568	41	35.5	60	S.W.	13	.84	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		26.100	56	43.5	26.047	43.5	39.5	67.3	0	0	0	45	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.328	55	44	27.253	44.5	40	64.1	S.	2	.02	....	Stratus	3-4	Cirrus	1-4	.....	.....	.....	.....	Cloudy.

Meteorological record for June 4, 1873.

	a. m.																				
Station 1	1 0	23.935	60	37	23.860	37	35	80	W.	14	.98	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.600	65	40.5	24.548	40	35	55.7	S.W.	13	.84	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Threatening.
3		26.098	57	44	26.043	44.5	41	72.0	W.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Threatening.
4		27.322	55	39.5	27.247	40.5	37	69.2	E.	2	.02	....	Stratus	1-4	Cirrus	2-4	.....	.....	.....	.....	Cloudy.
Station 1	2 0	23.928	73	36	23.838	36	35	90	W.	12	.72	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.583	62	41	24.538	40.5	36	60.5	S.W.	12	.72	....	Nimbus	4-4	Hidden	....	.....	1.15 a. m.	.....	.....	Light rain.
3		26.069	58	45	26.011	45.5	42	72.6	W.	1	.01	....	Nimbus	4-4	Hidden	....	.....	1.25 a. m.	.....	.....	Light rain.
4		27.294	55	44.5	27.219	45.5	41	65.0	S.E.	3	.04	....	Stratus	3-4	Cirrus	1-4	.....	.....	.....	.....	Cloudy.
Station 1	3 0	23.900	74	36	23.808	36	36	100	W.	18	1.62	....	Nimbus	4-4	Hidden	....	.....	2.35 a. m.	.....	.....	Light rain.
2		24.559	60	40	24.518	39.5	38	86.3	W.	13	.84	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
3		26.031	56	44.5	25.978	44.5	42	79.8	N.W.	2	.02	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
4		27.284	55	44	27.209	45	42	76.2	S.	3	.04	....	Nimbus	4-4	Hidden	....	.....	2.30 a. m.	.....	.....	Light rain.
Station 1	4 0	23.880	71	36	23.794	36	36	100	W.	24	2.88	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
2		24.523	54	38.5	24.495	38	37	90.5	S.W.	16	1.28	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
3		26.035	58	43	25.977	43.5	42	87.5	W.	1	.01	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
4		27.268	55	43.5	27.193	44.5	42.5	83.8	S.	2	.02	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
Station 1	5 0	23.850	66	36	23.775	36	36	100	W.	20	2.00	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
2		24.410	53	39	24.404	39	38	90.7	W.	18	1.62	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
3		26.010	57	43	25.955	43	42	91.6	S.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
4		27.202	54	43	27.180	44	42	83.6	S.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
Station 1	6 0	23.84	65	36	23.767	36	36	100	W.	18	1.62	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
2		24.475	57	40.5	24.441	40	39	91.0	W.	12	.72	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
3		25.985	57	44	25.930	44	43	91.8	W.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
4		27.212	54	46	27.179	47	45	84.7	S.	3	.04	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.

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Meteorological record for June 4, 1873—Continued

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Comm'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	p. m.																				
Station 1	7 0	23.565	74	48	23.475	48	46	85	N. W.	38	7.22	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
2		24.218	59	49.5	24.181	49	49	100	W.	42	8.82	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
3		25.730	67	55	25.653	55	55	100	S. W.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
4		26.892	65	55	26.792	55	54	93.4	E.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1	8 0	23.588	73	48	23.500	48	48	100	N. W.	19	1.80	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
2		24.199	60	50	24.159	50	50	100	W.	54	14.58	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
3		25.715	69	55	25.631	55	55	100	W.	5	.12	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
4		26.895	68	55	26.788	55.5	54	90.2	E.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
Station 1	9 0	23.568	69	47	23.478	47	47	100	N. W.	24	2.88	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
2		24.190	58	49.5	24.155	49.5	49.5	100	W.	42	8.82	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
3		25.710	69	54.5	25.629	54.5	54.5	100	N. W.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	8.45 p. m.	.....	Threatening.
4		26.898	70	58.5	26.788	59	57	87.8	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1	10 0	23.550	69	48	23.470	48	48	100	N. W.	40	8.00	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
2		24.168	59	49.5	24.151	50	50	100	W.	38	7.22	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
3		25.698	69	54.5	25.617	54.5	54.5	100	N.	12	.72	....	Nimbus	4-4	Hidden	....	.....	9.20 p. m.	.....	.....	Light rain.
4		26.880	70	59	26.770	59	58	93.9	S.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
Station 1	11 22	24.555	73	47	23.469	47	47	100	N. W.	30	4.50	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.56	Light rain.
2		24.218	67	49	24.163	49.5	49.5	100	W.	25	3.12	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.55	Light rain.
3		25.688	67	53	25.611	53	53	100	W.	6	.18	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.40	Light rain.
4		26.868	69	57	26.760	57	57	100	W.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.35	Light rain.
Station 1	12 0	23.550	73	46	23.402	46	46	100	N. W.	22	2.42	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
2	mid-night.	24.229	68	48.5	24.172	48	48	100	N. W.	32	5.12	790	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
3		25.678	62	52	25.613	52	52	100	N.	8	.32	103	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
4		26.845	69	58	26.737	58	57	93.7	W.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.

Meteorological record for June 5, 1873.

	a. m.																				
Station 1	1 0	23.590	74	44	23.492	44	44	100	N. W.	24	2.88	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
2		24.210	66	47	24.158	47	47	100	N. W.	14	.98	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
3		25.678	65	50	25.600	50	50	100	N.	6	.18	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
4		26.870	65	55	26.760	55	54	87.4	W.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.

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Meteorological record for June 5, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from)—	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	p. m.																				
Station 1	2 0	23.635	68	44	23.557	44	42	84	N. W.	16	1.28	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.278	64	50	24.228	49	48	92.6	W.	17	1.44	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.750	67	56	25.673	56	53	80.9	W.	5	.12	....	Stratus	2-4	Cumulus	2-4	N.	.....	.....	.....	Cloudy.
4		26.940	67	65	26.837	65	57	58.2	W.	4	.08	....	Stratus	3-4	Cumulus	1-4	N. W.	.....	.....	.....	Cloudy.
Station 1	3 0	23.645	66	45	23.571	45	44	92	N. W.	8	.32	....	Nimbus	4-4	Hidden	....	.....	3.00 p. m.	.....	.....	Light rain.
2		24.267	57	48	24.233	48	46	65.0	W.	19	1.88	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.750	67	56	25.673	56	53	80.9	S. E.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Threatening.
4		26.938	67	64	26.835	64	57	62.7	W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1	4 0	23.578	67	42	23.502	42	42	100	N. W.	18	1.62	....	Stratus	4-4	Hidden	....	.....	.....	3.55 p. m.	.....	Cloudy.
2		24.247	61	45.5	24.204	45	45	100	W.	27	3.61	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.750	67	51	25.673	51	51	100	W.	4	.08	....	Stratus	1-4	Cirrus	1-4	N.	3.10 p. m	3.50 p. m.	.....	Fair.
4		26.940	63	57	26.847	58	55.5	84.5	S. E.	4	.08	....	Stratus	2-4	Cirrus	1-4	N. W.	3.10 p. m.	3.45 p. m.	.....	Clear'g, thunder storm.
Station 1	4 57	23.610	69	42	23.530	42	41	91	N. W.	20	2.00	....	Haze	....	Cumulus	2-4	N. W.	.....	.....	.06	Cloudy.
2		24.269	60	44.5	24.229	44	43.5	95.8	N. W.	23	2.64	....	Stratus	2-4	Cumulus	1-4	N. W. s.	3.05 p. m.	3.50 p. m.	.20	Clearing up.
3		25.752	66	49	25.678	49	48	92.6	N. W.	6	.18	....	Stratus	3-4	Hidden	....	.....	.....	.....	.17	Fair.
4		26.955	66	58	26.853	57.5	55	84.4	0	0	0	....	Stratus	2-4	Cirrus	1-4	N. W.	.....	.....	.15	Clearing up.
Station 1	6 0	23.655	75	41	23.561	41	40	91	N. W.	22	2.42	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.281	61	44	24.236	44	43.5	95.8	W.	22	2.42	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Threatening.
3		25.778	66	49	25.704	49	49	100	N. W.	5	.12	....	Nimbus	3-4	Cirrus	1-4	N.	6.00 p. m.	.....	.....	Light rain.
4		26.963	68	56.5	26.858	57	54.5	84.3	N.	2	.02	....	Stratus	2-4	Cirrus	1-4	N. W.	.....	.....	.....	Clearing up.
Station 1	7 0	23.594	76	40	23.498	40	39	91	N. W.	25	3.12	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Fair.
2		24.318	69	43	24.257	43	43	100	N. W.	25	3.12	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Threatening.
3		25.760	65	49	25.706	49	48	92.6	N.	6	.18	....	Stratus	2-4	Cirrus	1-4	N. W.	.....	6.10 p. m.	.....	Fair.
4		26.983	65	54.5	26.882	55	53.5	90.1	E.	2	.02	....	Stratus	1-4	Cumulus	2-4	.....	.....	.....	.....	Fair.
Station 1	8 0	23.612	74	39	23.541	39	38	91	N. W.	25	3.12	....	Cumulus	1-4	Cumulus	2-4	N. W.	.....	.....	.....	Fair.
2		24.319	62	41.5	24.274	41.5	40	86.9	N. W.	30	4.50	....	Stratus	3-4	Cumulus	1-4	.....	.....	.....	.....	Threatening.
3		25.782	64	46	25.711	46	45	92.1	0	0	0	....	Stratus	2-4	0	0	0	.....	.....	.....	Fair.
4		26.984	65	50	26.886	51	49	85.9	E.	2	.02	....	Stratus	1-4	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
Station 1	9 0	24.500	68	39	23.516	39	37	81	N. W.	30	4.50	....	Haze	....	Cumulus	2-4	N. W.	.....	.....	.....	Fair.
2		24.310	58	41	24.361	41	40.5	95.5	N. W.	36	6.48	....	Stratus	2-4	0	0	0	8.16 p. m	8.20 p. m.	.....	Fair.
3		25.800	64	47	25.720	47	46	92.3	N. W.	5	.12	....	Stratus	2-4	0	0	0	.....	.....	.....	Fair.
4		27.000	65	50	26.902	50.5	48.5	85.7	S. E.	4	.08	....	Stratus	1-4	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
Station 1		24.640	64	39	23.650	39	37	81	N. W.	37	6.84	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.[illegible]	[illegible]	41	24.[illegible]	41	41	100	N. W.	12	.72	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
3	10 0	[illegible]	[illegible]	46	25.[illegible]	46	46	100	E.	1	.01	....	Nimbus	4-4	Hidden	....	.....	9.40 p. m	.....	.....	Light rain.
4		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Misting.

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Station 1			31 665 69		37	23. 584	37		36	90	N. W.	14	.07		Stratus	4-4	Hidden						
2			24. 329 63		40. 5	24. 281	40. 5		40	95. 5	S. W.	23	2. 61		Stratus	4-4	Hidden						
3			25. 815 63. 5		45	25. 745	45		44	92. 0	0	0	0		Stratus	2-4	0	0	0	9.45 p. m.	10.20 p. m	.08	Cloudy.
4			27. 000 61		47	26. 919	47		45	84. 7	S. E.	4	.08		Stratus	1-4	0	0	0		10.30 p. m	.01	Cloudy.
Station 1			23. 650 70		37	23. 567	37		36	90	N. W.	12	.72		Stratus	4-4	Hidden						Fair.
2			24. 317 63		40. 5	24. 269	40. 5		40. 5	100	W.	13	.84	360	Stratus	4-4	Hidden						Cloudy.
3			25. 800 61		45	25. 736	45		44	92. 0	0	0	0	103	Stratus	1-4	Cirro-cum	2-4	W.				Cloudy.
4			27. 000 60		46. 5	26. 914	47		44. 5	80. 9	S. E.	4	.08		0	0	Cirrus	2-4	N. W.				Fair.

Meteorological record for June 6, 1873.

	a. m.																						
Station 1			23. 650	70	38	23. 567	38		37	90	N. W.	26	3. 38		Stratus	4-4	Hidden						Cloudy.
2	1	0	24. 230	66	41	24. 266	41		41	100	W.	11	.60		Stratus	4-4	Hidden						Cloudy.
3			25. 794	60	45	25. 732	44. 5		44	95. 9	0	0	0		Stratus	3-4	Hidden						Cloudy.
4			27. 005	59	45	26. 921	46		43	76. 7	S. E.	4	.08		Stratus	3-4	Cirrus	1-4					Cloudy.
Station 1			23. 650	65	38	23. 578	38		37	90	N. W.	22	2. 42		Stratus	4-4	Hidden						Cloudy.
2	2	0	24. 315	65	41	24. 263	41		40. 5	95. 5	W.	22	2. 42		Stratus	4-4	Hidden						Cloudy.
3			25. 809	63	45. 5	25. 740	45		44. 5	95. 9	N. E.	1	.01		Stratus	2-4	0	0					Fair.
4			27. 012	58	46	26. 931	47		45	84. 7	E.	4	.08		Stratus	3-4	Cirrus	1-4					Cloudy.
Station 1			23. 650	64	39	23. 580	39		38	91	N. W.	20	2. 00		Stratus	4-4	Hidden						Cloudy.
2	3	0	24. 323	63	41. 5	24. 275	41. 5		41	95. 6	N. W.	19	1. 80		Stratus	4-4	Hidden						Cloudy.
3			25. 800	61	45	25. 736	45		44. 5	95. 9	N. E.	4	.08		Stratus	2-4	0	0					Fair.
4			27. 022	55	44	26. 948	45		43	84. 0	N. E.	4	.08		Stratus	4-4	Hidden						Cloudy.
Station 1			23. 660	62	39	23. 595	39		37	81	N. W.	18	1. 62		Nimbus	4-4	Hidden			3. 40 a. m.			Light rain.
2	4	0	24. 335	63	41. 5	24. 283	41. 5		41	95. 6	N. W.	14	.98		Stratus	4-4	Hidden						Cloudy.
3			25. 799	61	45. 5	25. 735	45		45	100	N.	1	.01		Stratus	3-4	Cumulus	1-4	N. W.				Cloudy.
4			27. 023	56	45	26. 947	46		44	84. 3	N. E.	4	.08		Stratus	4-4	Hidden						Cloudy.
Station 1			23. 675	63	39	23. 608	39		38	91	N. W.	18	1. 62		Stratus	4-4	Hidden						Cloudy.
2	5	0	24. 305	72	42	24. 288	41. 5		41	95. 6	W.	11	.60		Stratus	4-4	Hidden				5. 00 a. m.	.03	Cloudy.
3			25. 820	61	44. 5	25. 756	45		44	92. 0	0	0	0		Stratus	1-4	Cumulus	2-4	N. W.				Cloudy.
4			27. 048	55	46	26. 974	47		45	84. 7	N. E.	4	.08		Stratus	2-4	Cirrus	1-4					Fair.
Station 1			23. 690	65	39	23. 618	39		38	91	W.	17	1. 44		Stratus	4-4	Hidden						Cloudy.
2	6	0	24. 335	68	42. 5	24. 297	42		42	100	W.	14	.98		Stratus	4-4	Hidden						Cloudy.
3			25. 826	59	46	25. 766	46. 5		46	96. 1	N.	1	.01		0	0	Cumulus	3-4	N. W.				Cloudy.
4			27. 048	55. 5	48	26. 973	49		47	85. 3	N. E.	3	.04		Stratus	3-4	0	0					Fair.
Station 1			23. 700	70	40	23. 622	40		39	91	N. W.	24	2 88		Stratus	4-4	Hidden						Cloudy.
2	7	0	24. 360	63	43. 5	24. 312	43		42. 5	95. 7	W.	10	.50		Stratus	4-4	Hidden						Cloudy.
3			25. 842	61	47. 5	25. 778	48		47	92. 5	0	0	0		Stratus	1-4	Cumulus	2-4	N. W.				Cloudy.
4			27. 052	57	51. 5	26. 973	52. 5		50. 5	86. 1	N. E.	1	.01		Stratus	2-4	Cirrus	1-4	N.				Fair.
Station 1			23. 725	70	41	23. 642	41		40	91	N. W.	16	1. 28		Stratus	4-4	Hidden						Cloudy.
2	7	57	24. 387	63	45	24. 322	44. 5		44	95. 9	W.	13	.84		Stratus	4 4	Hidden						Cloudy.
3			25. 854	61	49. 5	25. 780	50		48. 5	89. 1	N.	2	.02		0	0	Cumulus	2-4	N.				Cloudy.
4			27. 052	57	54. 5	26. 973	55		50. 5	71. 1	0	0	0		Stratus	2-4	Cirrus	1-4					Fair.
Station 1			23. 735	74	42	23. 644	42		41	91	N. W.	12	.72		Stratus	4-4	Hidden						Cloudy.
2	9	0	24. 369	59	45	24. 330	45		44	92	W.	17	1. 44		Stratus	4-4	Hidden						Cloudy.
3			25. 852	59. 5	52	25. 791	52		49	79. 4	0	0	0		Stratus	2-4	Cumulus	2-4	W.				Cloudy.
4			27. 064	60	58. 5	26. 978	59		53	64. 7	W.	4	.08		Stratus	4-4	Hidden						Cloudy.

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Meteorological record for June 6, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM.		HYGROM.		Corrected barometer.	Relative humidity.	WIND.			LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.			Amount of rain or melted snow.	Remarks
			Attached.	Exposed.	Dry bulb.	Wet bulb.			Direction.	Velocity per hour.	Pressure per sq. ft.	Kind.	Amount.	Kind.	Amount.	Direction (moving from—)	Commen'd.	Ended.			
	a. m.																				
Station 1	0	23.735	42	42	41	41	23.656	91	N. W.	14	.98	Stratus	4-4	Hidden	4-4	.....	.....	.....	.....	.....	Cloudy.
2		24.390	46	44	42	42	24.336	92	W.	22	2.42	Stratus	4-4	Hidden	4-4	.....	.....	.....	.....	.....	Cloudy.
3	10	25.865	53	50	50	45	25.801	79.8	W.	6	.18	Stratus	2-4	Cumulus	2-4	W.	.....	.....	.....	.....	Cloudy.
4		27.008	60	58	53	50	26.962	64.7	S. W.	4	.06	Stratus	2-4	Cumulus	1-4	N. W.	.....	.....	.....	.....	Cloudy.
Station 1		23.730	65	62	41	41	23.656	91	N. W.	15	1.12	Hazy	.....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
2		24.388	63	47	44	44	24.340	94	W.	25	3.12	Stratus	2-4	Cumulus	2-4	W. a.	.....	.....	.....	.....	Cloudy.
3	11	25.870	65	54	51	50	25.796	80.2	W.	6	.18	Stratus	2-4	Cumulus	2-4	W.	.....	.....	.....	.....	Cloudy.
4		27.062	63	63	53	52	26.969	61.2	W.	6	.18	Stratus	2-4	Cumulus	2-4	N. W.	.....	.....	.....	.....	Cloudy.
Station 1		23.735	62	62	42	42	23.654	91	N. W.	12	.72	Hazy	.....	Cumulus	4-4	.....	.....	.....	.....	.....	Cloudy.
2		24.392	64	59	56	56	24.342	72.6	W.	24	2.88	Stratus	1-4	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
3	12 m.	25.840	67	54	50	50	25.802	73.8	W.	6	.18	0	0	Cumulus	3-4	W.	.....	.....	.....	.....	Fair.
4		27.006	63	63	52	52	26.977	49.8	N. W.	8	.32	Stratus	2-4	Cumulus	1-4	N. W.	.....	.....	.....	.....	Cloudy.
	p. m.																				
Station 1		23.735	69	43	42	42	23.651	91	W.	16	1.28	Hazy	.....	Cumulus	3-4	.....	12.20 p. m	12.27 p. m		(*)	Fair.
2	1	24.378	67	54	47	44	24.343	80.7	W.	28	3.92	Stratus	2-4	Cumulus	1-4	W. a.	12.20 p. m	12.30 p. m		.02	Fair.
3		25.840	67	54	55	51	25.802	80.2	W.	4	.08	Stratus	1-4	Cumulus	3-4	W.	12.20 p. m	12.30 p. m		.03	Cloudy.
4		27.070	64	63	55	53	26.974	56.8	N. W.	8	.32	Stratus	4-4	Hidden	.....	.....	.....	.....		.....	Cloudy.
Station 1		23.732	74	63	49	49	23.661	91	W.	14	.98	Hazy	.....	Cumulus	4-4	W.	1.05 p. m	1.20 p. m		.....	Fair.
2		24.350	50	46	46	46	24.300	71.6	W.	22	2.42	Stratus	1-4	Cumulus	2-4	.....	.....	.....		.....	Fair.
3	2	25.890	65	50	50	50	25.806	64.4	W.	10	.50	0	0	Cumulus	3-4	W.	.....	.....		.....	Fair.
4		27.080	67	56	56	56	26.977	53.5	N. W.	8	.32	Cumulus	2-4	Cirrus	1-4	N. W.	1.15 p. m	1.30 p. m		.....	Cloudy.
Station 1		23.765	70	63	43	42	23.692	91	W.	10	.50	Cumulus	1-4	Cumulus	3-4	W.	.....	.....		.....	Cloudy.
2		24.410	60	55	46	44	24.356	70.4	N. W.	24	2.88	Stratus	3-4	Cumulus	1-4	N. W. a.	.....	.....		.....	Light rain.
3	3	25.862	67	55	50	50	25.8 4 33	68.1	W.	6	.18	Nimbus	1-4	Cumulus	2-4	W.	3.00 p. m	.....		.....	Light rain.
4		27.078	68	64	55	55	26.961	52.7	N. W.	16	.50	Stratus	3-4	Cumulus	1-4	N. W.	.....	.....		.....	Cloudy.
Station 1		23.750	65	42	41	41	23.677	83	W.	10	.50	Hazy	.....	Cumulus	2-4	W.	.....	.....		.....	Fair.
2		24.410	60	49	46	46	24.360	74.1	N. W.	22	2.42	Stratus	1-4	Cumulus	2-4	N. W. a.	.....	.....		.....	Fair.
3	4	25.870	67	54	50	50	25.807	73.8	W.	4	.08	0	0	Cumulus	2-4	W.	.....	.....		.....	Fair.
4		27.085	63	51	55	55	26.9 7 02	61.2	N. W.	0	0	0	0	Cumulus	3-4	N. W.	3.15 p. m	3.25 p. m		(†)	Cloudy.
Station 1		23.751	64	63	52	52	23.676	91	W.	8	.32	Cumulus	1-4	Cumulus	3-4	W.	.....	.....		.....	Fair.
2		24.402	62	50	47	47	24.424	81.9	N. W.	16	1.28	Stratus	1-4	Cumulus	2-4	N. W. a.	2.55 p. m	3.15 p. m		.03	Fair.
3	4 57	25.900	75	55	50	50	25.810	68.1	N.	1	.01	0	0	Cumulus	1-4	N. W.	.....	.....		.....	Fair.
4		27.095	67	61	54	54	26.9 6 80	102.8	N. W.	4	.04	0	0	Cumulus	2-4	N. W.	.....	.....		.....	Fair.
Station 1		23.770	72	61	44	44	23.695	91	W.	4	.04	Haze	1-4	Cumulus	3-4	W.	.....	.....		.....	Fair.
2		24.4 0 04	64	54	43	43	24.4 0 17	74.4	N. W.	4	.04	Stratus	1-4	Cumulus	3-4	N. W. a.	.....	.....		.....	Fair.
3		25.9 0 09	69	54	53	53	25.8 1 17	71.4	N. W.	4	.04	Stratus	0	Cumulus	3-4	N. W.	.....	.....		.....	Cloudy.
4		27.1 0 15	64	63	53	53	26.9 8 17	74.4	N.	4	.04	0	0	Cumulus	3-4	N.	.....	.....		.....	Cloudy.

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	9			24.429	64	41	24.359	44. 5	43. 5	91. 0	N. W.	18	1.62	....	Stratus ...	1-4	Hidden ..							
	3	7	0	25.900	60	51	25.817	51	50	92. 9	N. W.	5	.12	....	Stratus ...	3-4	Cumulus	1-4	N. W. a.					Cloudy.
	4			27.080	63	57	26.999	57. 5	53	72. 5	0	0	0	....	Stratus ...	4-4	0	0						Threatening.
Station	1			23.760	67	41	23.703	41	40	91	N. W.	8	.32	....	Stratus ...	4-4	Hidden							Cloudy.
	2	8	0	24.430	66	44	24.389	44	43	91. 8	W.	12	.72	....	Stratus ...	3-4	0	0						Cloudy.
	3			25.920	70	49	25.835	49	47	85. 3	0	0	0	....	Stratus ...	2-4	0	0						Cloudy.
	4			27.100	61	53	27.012	53. 5	50	76. 7	N.	2	.02	....	Stratus ...	2-4	Cumulus ..	1-4						Fair.
Station	1			23.760	65	40	23.687	40	39	91	W.	22	2.42	....	Cumulus ..	1-4	Cumulus ..	3-4	W.					Cloudy.
	2	9	0	24.457	69	43. 5	24.396	42	42	100	N. W.	22	2.42	....	Stratus ...	3-4	0	0						Cloudy.
	3			25.920	68	48	25.839	48	47	92. 5	0	0	0	....	Stratus ...	4-4	Hidden							Fair.
	4			27.105	61	50	27.017	50. 5	48	82. 2	N.	4	.08	....	Stratus ...	2-4	Cumulus ..	2-4						Cloudy.
Station	1			23.760	68	40	23.705	40	39	91	W.	16	1.28	....	Stratus ...	4-4	Hidden							Cloudy.
	2	10	0	24.447	66	42. 5	24.393	42. 5	42	95. 7	N. W.	8	.32	....	Stratus ...	4-4	Hidden							Cloudy.
	3			25.930	65	47	25.856	47	46	92. 3	0	0	0	....	Nimbus ...	4-4	Hidden			10. 00 p. m				Threatening.
	4			27.120	62	50	27.029	50	48	85. 6	0	0	0	....	Stratus ...	4-4	Hidden							Light rain.
Station	1			23.780	71	38	23.695	38	37	90	N. W.	14	.98	....	Cumulus ..	2-4	Cumulus ..	1-4	N. W.					Cloudy.
	2	11	22	24.450	70	40. 5	24.387	40. 5	39	86. 6	S. W.	8	.32	....	Stratus ...	2-4	0	0						Fair.
	3			25.910	62	45	25.843	45	43	84. 0	N. E.	2	.02	....	0	0	Cumulus ..	1-4	W.		10. 15 p. m	.02		Fair.
	4			27.105	61	47	27.017	48	46. 5	88. 7	0	0	0	....	0	0	Cirro-cum	1-4	N.					Fair.
Station	1			23.780	71	38	23.695	38	37	90	N. W.	12	.72	....	Cumulus ..	1-4	Cumulus ..	1-4	N. W.					Clear.
	2	12	0	24.437	67	40	24.381	40	38. 5	86. 4	S. W.	8	.32	....	Stratus ...	1-4	Cirrus	1-4						Fair.
	3	mid-		25.910	60	45	25.848	45	43	84. 0	N. E.	2	.02	74	0	0	Cumulus ..	1-4	W.					Fair.
	4	night.		27.110	61	46. 5	27.022	46	45	92. 1	N.	2	.02	....	0	0	Cirro-cum .	3-4	N.					Fair.

* Not enough to measure. † No measure.

Meteorological record for June 7, 1873.

		a. m.																						
Station	1			23.755	71	37	23.670	37	36	90	N. W.	18	1.62	....	Stratus ...	1-4	Cumulus ..	2-4	N. W.					Fair.
	2	1	0	24.440	75	40	24.366	40	38	82. 0	N.	5	.12	....	Stratus ...	1-4	0	0						Fair.
	3			25.890	61	44	25.826	44. 5	42	79. 8	N.	4	.08	....	Stratus ...	1-4	0	0						Fair.
	4			27.115	59	44. 5	27.031	45. 5	43. 5	84. 1	E.	4	.08	....	Stratus ...	2-4	0	0						Fair.
Station	1			23.760	70	37	23.677	37	36	90	N. W.	12	.72	....	Cumulus ..	1-4	Cumulus ..	2-4	N. W.					Fair.
	2	2	0	24.440	72	40	24.373	40	36	64. 5	N.	4	.08	....	Stratus ...	2-4	0	0						Fair.
	3			25.890	59	42. 5	25.830	43	41	83. 3	0	0	0	....	Stratus ...	1-4	0	0						Fair.
	4			27.1[illegible]	58	45	27.027	46	43	76. 7	N. E.	3	.04	....	Stratus ...	2-4	0	0						Fair.
Station	1			23.736	66	36	23.661	36	35	90	N. W.	8	.32	....	Stratus ...	4-4	Hidden ..							Cloudy.
	2	3	0	24.440	73	39	24.371	39	38	90. 7	N.	12	.72	....	Stratus ...	4-4	Hidden ..							Cloudy.
	3			25.900	62	43. 5	25.833	44	42	83. 5	0	0	0	....	Stratus ...	4-4	Hidden ..							Cloudy.
	4			27.109	57	44	27.030	45	42	76. 2	E.	3	.04	....	Hazy	....	Hidden ..							Hazy.
Station	1			23.728	65	35	23.655	35	34	90	N. W.	10	.50	....	Stratus ...	4-4	Hidden ..							Cloudy.
	2	4	0	24.430	70	39	24.367	38. 5	38. 5	100	W.	11	.60	....	Stratus ...	4-4	Hidden ..							Cloudy.
	3			25.913	63	43. 5	25.841	44	43	91. 8	0	0	0	....	Stratus ...	4-4	Hidden ..							Cloudy.
	4			27.108	56. 5	45	27.041	46	43	76. 7	N. E.	3	.04	....	Stratus ...	4-4	Hidden ..							Cloudy.
Station	1			23.740	69	35	23.659	35	34	90	N. W.	5	.12	....	Stratus ...	4-4	Hidden ..							Cloudy.
	2	5	0	24.430	64	38. 5	24.380	38	38	100	N. W.	10	.50	....	Stratus ...	4-4	Hidden ..							Cloudy.
	3			25.920	60	43	25.858	43. 5	42. 5	91. 7	N.	2	.02	....	Stratus ...	4-4	Hidden ..							Cloudy.
	4			27.115	57	46	27.036	46. 5	44. 5	84. 3	N. E.	2	.02	....	Stratus ...	4-4	Hidden ..							Cloudy.

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Meteorological record for June 7, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from)—	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	a. m.																				
Station 1	6 0	23.758	69	35	23.677	35	34	90	N. W.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.435	64	38.5	24.385	38	37.5	95.2	N. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.920	57.5	44	25.864	44.5	43	87.6	0	0	0	...	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.135	57	47.5	27.056	48	46	85.0	N. E.	1	.01	....	Stratus	3-4	Hidden	..	.....	.....	.....	.....	Cloudy.
Station 1	7 0	23.780	68	35	23.701	35	34	90	N. W.	13	.84	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.440	65	38	24.388	37.5	37.5	100	N.	10	.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.928	59	44.5	25.868	44.5	43.5	91.9	N. W.	3	.04	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.145	55.5	51	27.070	51	48	79.0	N. W.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1	7 57	23.780	67	36	23.703	36	35	90	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.453	64	37.5	24.403	37	37	100	N.	12	.72	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.925	58	44.5	25.877	44.5	43.5	91.9	N. W.	5	.12	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.162	60	51.5	27.076	51.5	48.5	79.2	0	0	0	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1	9 0	23.770	60	36	23.708	36	35	90	N. W.	10	.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.449	58	39	24.410	39	38	90.7	N. W.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.934	54	44	25.884	44	43.5	95.8	N. W.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.170	60	53	27.084	53.5	50	76.7	N. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1	10 0	23.785	58	36	23.727	36	35	90	N. W.	12	.72	....	Nimbus	4-4	Hidden	....	.....	9.26 a. m.	.....	.....	Light rain and hail.
2		24.441	55	39	24.411	38.5	38	95.3	N. W.	18	1.62	....	Nimbus	4-4	Hidden	....	.....	9.45 a. m	.....	.....	Light rain.
3		25.940	59	44	25.880	44	44	100	N. W.	6	.18	....	Nimbus	4-4	Hidden	....	.....	9.45 a. m.	.....	.....	Light rain.
4		27.171	60	54.5	27.085	55	50	68.1	N. W.	3	.04	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1	11 0	23.750	58	36	23.693	36	35	90	N. W.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	10.45 a. m.	.....	Cloudy.
2		24.418	53	38	24.422	37.5	37.5	100	N. E.	15	1.12	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
3		25.945	60	46	25.883	46	43	76.7	N. W.	5	.12	....	Stratus	2-4	Cumulus	2-4	N. W.	.....	10.20 a. m.	.....	Cloudy.
4		27.170	61	56.5	27.082	57	50.5	64.0	N. W.	8	.32	....	Stratus	2-4	Cumulus	1-4	N.	.....	.....	.....	Cloudy.
Station 1	12 m.	23.770	59	36	23.710	36	35	90	N. W.	12	.72	....	Nimbus	4-4	Hidden	....	.....	11.30 a. m.	.....	.....	Light rain.
2		24.439	61	49	24.416	48	48	100	N. W.	17	1.44	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
3		25.933	63	45	25.880	45	44	92.0	N.	7	.24	....	Nimbus	4-4	Hidden	....	.....	11.45 a. m.	.....	.....	Light rain.
4		27.126	61	55.5	27.092	56	50.5	55.7	N. W.	0	.18	81	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
	p. m.																				
Station 1	1 0	23.760	60	37	23.704	37	36	90	N. W.	7	.24	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
2		24.4[illegible]	58	48.5	24.430	48.5	48	96.2	N. W.	17	1.44	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
3		25.963	63	45	25.901	45	45	100	N.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
4		27.184	61.5	54	27.095	54	51	80.2	N. W.	6	.18	....	Nimbus	4-4	Hidden	....	.....	12.40 p. m.	.....	.....	Light rain.
Station 1	2 0	23.770	60	36	23.709	36	36	100	N. W.	10	.50	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
2		24.409	57	38	24.435	38	37.5	95.2	N. E.	13	.84	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
3		25.973	64	44	25.904	44	43	91.8	N. W.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
4		27.191	61	54.5	27.103	55	52	80.5	E.	6	.18	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.

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Meteorological record for June 8, 1873.

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Meteorological record for June 8, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM.		HYGROM.		Corrected barometer.	Relative humidity.	WIND.			LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Remarks.
			Attached.	Exposed.	Dry bulb.	Wet bulb.			Direction.	Velocity per hour.	Pressure per sq. ft.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from—)	Common'd.	Ended.		
	h. m.																			
Station 1	2 0	23.875	66	34	33	37.5	23.800	90	N. E.	55	15.12	Stratus	4-4	Hidden						Cloudy.
2		24.545	61	38	37.5	37.5	24.502	100	S. W.	24	2.88	Stratus	4-4	Hidden						Cloudy.
3		26.061	61	43	42	42	25.997	91.6	N.	14	.98	Stratus	2-4	Cumulus	1-4	N.				Cloudy.
4		27.319	59	47.5	46	46	27.257	81.5	N. E.	3	.04	Stratus	4-4	Hidden						Cloudy.
Station 1	3 0	25.880	65	34	33	33	25.807	100	N. E.	48	11.52	Stratus	4-4	Hidden						Cloudy.
2		24.545	63	37	34	37	24.490	100	S. W.	24	2.88	Stratus	4-4	Hidden						Cloudy.
3		26.050	59	42.5	42	42	25.999	91.6	N.	13	.84	Stratus	3-4	Cumulus	1-4	N. E.				Cloudy.
4		27.330	58.5	46	43	43	27.246	81.5	N. E.	4	.08	Stratus	4-4	Hidden						Cloudy.
Station 1	4 0	23.883	61	33	33	33	23.820	100	N. E.	36	6.48	Stratus	4-4	Hidden						Cloudy.
2		24.550	59	36	34	36	24.511	100	E.	36	3.24	Stratus	4-4	Hidden						Cloudy.
3		26.098	59	42	40.5	40.5	26.024	78.2	N. E.	12	.72	Stratus	2-4	Cumulus	1-4	N. E.				Cloudy.
4		27.342	58.5	47.5	46	46	27.258	81.5	S. E.	5	.12	Stratus	3-4	0	0					Cloudy.
Station 1	5 0	25.925	66	33	33	33	25.850	100	E.	36	6.48	Stratus	4-4	Hidden						Cloudy.
2		24.580	57	35.5	34	35	24.546	100	N. E.	24	2.88	Stratus	4-4	Hidden						Cloudy.
3		26.100	56	41.5	36	41	26.057	91.4	N.	11	.60	Stratus	1-4	Cumulus	2-4	N. E.				Fair.
4		27.380	58	48	45	43	27.277	71.0	N. E.	6	.18	Stratus	2-4	Cirro-cum	1-4	E.				Cloudy.
Station 1	6 0	25.855	60	33	33	33	25.853	100	N. E.	38	7.22	Stratus	4-4	Hidden						Cloudy.
2		24.559	61	35	34	34.5	24.553	100	W.	28	2.42	Stratus	4-4	Hidden						Cloudy.
3		26.159	58	41.5	40	40	26.071	82.9	N.	10	.50	Stratus	0	Cumulus	3-4	N. E.				Fair.
4		27.367	57	48	43.5	43.5	27.307	60.6	E.	7	.34	Stratus	1-4	Cirro-cum	2-4	E.				Cloudy.
Station 1	7 0	25.960	63	33	33	33	25.891	100	N. E.	30	4.50	Stratus	4-4	Hidden						Cloudy.
2		24.633	64	35	34.5	34.5	24.583	100	N.	28	2.64	Stratus	4-4	Hidden						Cloudy.
3		26.165	61	42	41	41	26.101	91.4	N.	7	.94	Stratus	1-4	Cumulus	1-4	N. E.				Fair.
4		27.400	56.5	47.5	43.5	43.5	27.321	63.4	S. E.	8	.32	Stratus	1-4	Cumulus	1-4	N. E.				Fair.
Station 1	7 57	25.965	59	33	33	33	25.905	100	N. W.	40	6.00	Stratus	4-4	Hidden						Cloudy.
2		24.680	60	38	35	35	24.616	100	N. W.	16	1.28	Stratus	4-4	Hidden						Cloudy.
3		26.181	58	42.5	40.5	40.5	26.127	91.6	N.	9	.18	Stratus	1-4	Cumulus	1-4	N. E.				Fair.
4		27.422	57.5	48.5	44	44	27.341	61.1	E.	8	.32	Stratus	1-4	Cumulus	1-4	N.				Fair.
Station 1	9 0	23.905	57	33	33	33	23.847	100	N. E.	36	6.48	Cumulus	2-4	Cumulus	1-4	N. E.				Clearing up.
2		24.701	60	38	37	37	24.647	90.5	N. W.	13	.84	Stratus	2-4	Cirrus	1-4	N. E.				Fair.
3		26.149	54	43	41	41	26.139	84.4	N.	8	.32	Stratus	0	Cumulus	2-4	N. E.				Fair.
4		27.450	53	48	45	45	27.355	61.3	N.	9	.02	Stratus	1-4	Cumulus	1-4	N. E.				Fair.
Station 1	10 0	24.049	53	34	33	33	23.965	90	N. E.	30	4.50	Hazy	0	Cumulus	1-4	N. E.				Fair.
2		24.719	67	47	46	46	24.669	90	N. E.	11	1.02	Cumulus	0	Cumulus	2-4	N. E. r.				Fair.
3		26.215	58	47	46	46	26.157	82.4	N.	6	.36	Stratus	0	Cumulus	1-4	N. E.				Fair.
4		27.475	60	55	49	47	27.396	45.5	N. W.		.72									

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Meteorological record for June 8, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN AND SNOW. Commen'd.	RAIN AND SNOW. Ended.	Amount of rain or melted snow.	Remarks.
Station 1	12 0 mid-night.	24.100	72	36	24.012	36	34	80	N. E.	18	1.62	....	0	0	0	0	.....	.....	.....	.....	Clear.
2		24.756	68	40	24.698	40	36	64.5	N.	4	.08	390	0	0	0	0	.....	.....	.....	.....	Clear.
3		26.252	62	45	26.185	45	41	68.4	N. E.	4	.08	190	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.460	61	45	27.370	46	42.5	72.9	E.	4	.08	....	0	0	0	0	.....	.....	.....	.....	Clear.

Meteorological record for June 9, 1873.

	a. m.																				
Station 1	1 0	24.085	68	35	24.005	35	33	80	N. E.	24	2.88	....	0	0	0	0	.....	.....	.....	.....	Clear.
3		24.752	67	40.5	24.696	40	36	64.5	N.	6	.18	....	0	0	0	0	.....	.....	.....	.....	Clear.
3		26.240	63	45	26.171	45.5	41.5	68.8	N.	5	.12	....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.462	61	44	27.372	45	41.5	72.3	E.	4	.08	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1	2 0	24.075	66	35	24.000	35	33	80	N. E.	20	2.00	....	0	0	0	0	.....	.....	.....	.....	Clear.
2		24.733	62	40	24.688	40	36	64.5	N. W.	9	.12	....	0	0	0	0	.....	.....	.....	.....	Clear.
3		26.240	63	45	26.171	45.5	41	65.0	N. E.	6	.18	....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.460	60	43	27.373	44	40	67.7	E.	4	.08	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1	3 0	24.075	65	34	24.002	34	31	69	N. E.	20	2.00	....	0	0	0	0	.....	.....	.....	.....	Clear.
2		24.745	70	39.5	24.682	39.5	36	68.5	N. E.	12	.72	....	0	0	0	0	.....	.....	.....	.....	Clear.
3		26.240	64	46	26.169	46.5	41	58.5	N. E.	5	.12	....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.456	59	42.5	27.371	43.5	39.5	67.3	N. E.	4	.08	....	Hazy	....	0	0	.....	.....	.....	.....	Hazy.
Station 1	4 0	24.070	66	34	23.995	34	31	69	N. E.	10	.50	....	0	0	0	0	.....	.....	.....	.....	Clear.
2		24.735	65	39	24.683	39	34	54.7	N.	6	.18	....	0	0	0	0	.....	.....	.....	.....	Clear.
3		26.240	63	44.5	26.171	45	39.5	57.0	E.	6	.18	....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.462	56	42	27.384	43	40	75.0	E.	4	.08	....	Hazy	....	0	0	.....	.....	.....	.....	Hazy.
Station 1	5 0	24.083	70	37	24.001	37	34	71	N. E.	12	.72	....	0	0	0	0	.....	.....	.....	.....	Clear.
2		24.750	69	39	24.689	39	34.5	58.6	N. E.	7	.24	....	Stratus	1-4	0	0	.....	.....	.....	.....	Clear.
3		26.240	61	43.5	26.170	44	40	67.7	N. E.	6	.18	....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.468	55	41.5	27.393	42.5	30.5	74.7	E.	4	.08	..	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1		24.090	74	39	23.998	38	35	71	N. E.	12	.72	....	0	0	0	0	.....	.....	.....	.....	Clear.
2	6 0	24.749	66	43.5	24.695	42	37	77.7	N. W.	8	.32	....	Stratus	1-4	0	0	.....	.....	.....	.....	Clear.
3		26.234	50	44.5	26.181	44.5	39.5	60.2	N. E.	4	.08	....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.468	55	5.43	27.392	44	40.5	71.6	E.	3	.04	....	0	0	0	0	.....	.....	.....	.....	Clear.

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Meteorological record for June 9, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	p. m.																				
Station 1	7 0	23.995	71	45	23.909	45	40	60	0	0	0	....	Smoky	....	0	0	.....	.....	.....	.....	Clear.
2		24.638	60	52.5	24.597	52.5	42.5	35.6	N.	12	.72	....	Stratus	1-4	0	0	.....	.....	.....	.....	Clear.
3		26.138	73	60	26.046	60	48	34.2	N. W.	1	.01	....	Hazy	....	0	0	.....	.....	.....	.....	Clear.
4		27.330	71	60	27.216	59.5	52	56.8	0	0	0	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1	8 0	23.970	65	43	23.897	43	39	66	0	0	0	....	Hazy	....	0	0	.....	.....	.....	.....	Clear.
2		24.620	63	48	24.572	48	40	42.6	N. E.	8	.32	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.
3		26.130	71	54	26.042	54	46	49.3	0	0	0	....	Hazy	....	Cirrus	1-4	.....	.....	.....	.....	Clear.
4		27.300	65	55	27.200	56	48	51.2	N. W.	2	.02	....	Stratus	1-8	0	0	.....	.....	.....	.....	Clear.
Station 1	9 0	23.970	63	42	23.901	42	38	65	0	0	0	....	Hazy	....	0	0	.....	.....	.....	.....	Clear.
2		24.620	60	46.5	24.579	46.5	39	44.1	N.	10	.50	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.
3		26.115	69	51	26.032	51	44	52.5	0	0	0	....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.300	65	52	27.200	53	46.5	57.4	N.	2	.02	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1	10 0	23.960	62	42	23.893	42	37	58	E.	10	.50	....	Hazy	....	0	0	.....	.....	.....	.....	Clear.
2		24.618	61	45	24.575	45	38.5	49.5	N.	5	.12	....	0	0	Cirrus	1-4	N. s.	.....	.....	.....	Fair.
3		26.110	67	50	26.032	50	43	51.5	N. E.	2	.02	....	0	0	Cirrus	1-4	0	.....	.....	.....	Clear.
4		27.285	62	50	27.193	50	45	64.6	N.	4	.08	....	0	0	Cirrus	1-8	0	.....	.....	.....	Clear.
Station 1	11 22	23.944	63	41	23.875	41	36	57	N. E.	12	.72	....	0	0	0	0	0	.....	.....	.....	Clear.
2		24.616	66	44.5	24.562	44.5	37	41.6	N. E.	10	.50	....	0	0	0	0	0	.....	.....	.....	Clear.
3		26.090	66	48	26.014	48	41	49.4	N. E.	1	.01	....	0	0	0	0	0	.....	.....	.....	Clear.
4		27.260	59	47	27.175	47.5	42	59.4	N.	4	.08	....	0	0	0	0	0	.....	.....	.....	Clear.
Station 1	12 0 mid't.	23.940	65	40	23.867	40	35	56	N.	14	.98	....	0	0	0	0	0	.....	.....	.....	Clear.
2		24.590	63	44	24.542	44	36	37.9	N. E.	6	.18	220	0	0	0	0	0	.....	.....	.....	Clear.
3		26.080	66	48	26.004	48	41	49.4	N. E.	1	.01	84	0	0	0	0	0	.....	.....	.....	Clear.
4		27.255	61	46.5	27.165	47	42	62.4	N.	6	.18	....	0	0	0	0	0	.....	.....	.....	Clear.

Meteorological record for June 10, 1873.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	a. m.																				
Station 1	1 0	23.945	69	40	23.865	40	35	56	N.	10	.50	....	0	0	0	0	.....	.....	.....	.....	Clear.
2		24.590	65	44	24.538	44	36	37.9	N. E.	5	.12	....	0	0	Cirrus	1-4	N. E. s.	.....	.....	.....	Fair.
3		26.069	63	46	26.000	46	41	49.4	E.	1	.01	....	0	0	Cirro-strat	2-4	.....	.....	.....	.....	Fair.
4		27.260	61	46.5	27.179	47.5	43	66.3	N.	4	.08	....	Stratus	1-4	Cirrus	1-4	.....	.....	.....	.....	Fair.
Station 1	2 0	23.945	69	40	23.865	40	35	56	N.	8	.32	....	0	0	Cirrus	2-4	N.	.....	.....	.....	Fair.
2		24.595	72	44	24.538	44	36	37.9	N. E.	6	.18	....	0	0	Cirrus	3-4	N. E. s.	.....	.....	.....	Cloudy.
3		26.060	61	48	25.990	48	41	46.6	0	0	0	....	0	0	Cirro-cum	4-4	.....	.....	.....	.....	Cloudy.
4		27.220	60	47.5	27.134	48.5	44	60.9	N.	3	.04	....	Stratus	1-4	Cirrus	3-4	.....	.....	.....	.....	

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Meteorological record for June 10, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYDROM. Corrected barometer.	HYDROM. Dry bulb.	HYDROM. Wet bulb.	WIND. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (motion from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	p. m.																				
Station 1	3 0	23.910 58	53	53	23.852 53	45	48	48	W.	5	.12	...	Hazy ...	...	Cumulus	2-4	W.	...	...	...	Fair.
2		24.547 08	38	38	24.549 38	48	49	49	N. W.	13	.84	...	Stratus ...	1-4	Cumulus	2-4	W. a.	...	...	...	Fair.
3		26.045 70	65	65	25.960 65	53	59	53	N.	6	.12	...	Smoky ...	...	Cumulus	2-4	W.	...	...	...	Fair.
4		27.240 76	74	74	27.116 74	59	59	35.8	N.	6	.12	...	Hazy ...	...	Cumulus	1-4	W.	...	...	...	Fair.
Station 1	4 0	23.910 60	53	53	23.847 53	45	49	43	N. W.	7	.24	...	Hazy ...	...	Cumulus	1-4	N. W. a.	...	...	...	Fair.
2		24.570 66	63	63	24.516 62	49	49	31.7	N. W.	11	.60	...	Stratus ...	1-4	Cumulus	1-4	W.	...	...	...	Fair.
3		26.040 71	55	55	25.952 71	56	56	29.2	W.	5	.12	...	Smoky ...	...	Cumulus	1-4	N.	...	...	...	Fair.
4		27.216 78	73	73	27.107 73	56	56	27.6	W.	8	.32	...	Hazy ...	...	Cumulus	1-4	N. W.	...	...	...	Fair.
Station 1	4 57	23.912 67	53	53	23.874 53	44	49	42	N. W.	7	.24	...	Hazy ...	...	Cumulus	1-4	N. W.	...	...	...	Fair.
2		24.560 68	62	62	24.506 61.5	49	49	33.5	N. W.	17	1.44	...	Stratus ...	1-4	Cumulus	1-4	N. W. a.	...	...	...	Fair.
3		26.040 72	70	70	25.950 70	55	55	33	N. W.	5	.12	...	Smoky ...	...	Hazy ...	0	...	...	...	...	Clear.
4		27.230 79	73	73	27.088 72	56	56	30.2	N. W.	4	.08	...	Hazy ...	...	Cumulus	1-4	N. W.	...	...	...	Fair.
Station 1	6 0	23.935 76	61	61	23.858 51	43	43	45	N. W.	10	.50	...	Hazy ...	1-8	Cumulus	1-8	N. W.	...	...	...	Fair.
2		24.570 66	60	60	24.516 60	48.5	48.5	36.6	N. W.	7	.24	...	Stratus ...	1-4	Cumulus	0	...	...	...	...	Fair.
3		26.055 79	69	69	25.949 69	55	55	35.0	W.	6	.12	...	Smoky ...	...	Hazy	0	...	...	...	...	Clear.
4		27.225 79	69.5	69.5	27.105 70	53	53	34.0	N. W.	6	.12	...	Hazy ...	0	Cirrus ...	1-4	...	...	...	...	Fair.
Station 1	7 0	23.930 83	49	49	23.823 49	42	50	35.8	N. W.	12	.72	...	Hazy ...	...	Cirrus ...	0	...	...	...	...	Clear.
2		24.576 70	57	57	24.515 57.5	46.5	52	35.8	W.	23	3.12	...	Stratus ...	1-4	Cirrus ...	0	...	...	...	...	Clear.
3		26.050 74	65	65	25.955 65	52	53	35.1	S. W.	6	.18	...	Stratus ...	1-4	Cirrus ...	1-4	...	...	...	...	Clear.
4		27.225 73	66	66	27.108 66	53.5	53.5	36.3	N. W.	4	.02	...	Smoky ...	...	Cirrus ...	1-4	W.	...	...	...	Fair.
Station 1	8 0	23.940 82	62	62	23.881 48	42	50	49.8	W.	13	1.62	...	Hazy ...	1-4	Stratus	0	...	...	...	...	Clear.
2		24.566 64	52	52	24.516 51.5	44	50	52.9	N. E.	17	1.44	...	Stratus ...	...	Stratus	0	...	...	...	...	Fair.
3		26.039 71	58	58	25.951 58	50	50	55.3	W.	4	.08	...	Smoky ...	1-4	Cirro-strat.	1-4	W.	...	...	...	Clear.
4		27.205 67	57	57	27.102 57	50	50	53	W.	2	.02	...	Stratus ...	...	Stratus	0	...	...	...	...	Fair.
Station 1	9 0	23.930 80	47	47	23.825 47	42	42	62	W.	20	2.00	...	Hazy ...	1-4	Cirro-cum	1-4	W.	...	...	...	Fair.
2		24.530 59	56.5	56.5	24.493 56.5	44.5	50	58.1	W.	19	1.80	...	Stratus ...	1-4	Cirrus ...	2-4	W. a.	...	...	...	Fair.
3		26.025 72	58	58	25.945 58	48	48	42.1	N. E.	4	.06	...	Stratus ...	1-4	Cirro-cum	1-4	W.	...	...	...	Fair.
4		27.190 68	60	60	27.093 60.5	51	51	47.2	S.	2	.02	...	Stratus ...	1-4	Cirrus ...	2-4	...	...	...	...	Fair.
Station 1	10 0	23.922 64	47	47	23.808 47	43	49	69	W.	20	2.00	...	Cumulus ...	1-4	Cumulus	2-4	W.	...	...	...	Fair.
2		24.517 57	50	50	24.443 50	44.5	49	61.4	S. W.	7	.34	...	Stratus ...	2-4	Cirrus ...	1-4	W. a.	...	...	...	Fair.
3		26.010 70	57	57	25.925 57	49	49	52.1	N. E.	10	.50	...	Stratus ...	1-4	Cirro-cum	2-4	W.	...	...	...	Fair.
4		27.190 64	62.5	62.5	27.095 62.5	53	53	40.0	S. W.	4	.06	...	Stratus ...	1-4	Cirrus ...	2-4	W.	...	...	...	Fair.
Station 1	11 22	23.940 61	47	47	23.744 47	43	43	60	S. W.	4.50	...	...	Stratus ...	1-4	Cumulus	2-4	S. W.	...	...	...	Cloudy.
2		24.490 61	50	50	24.417 50	45.5	45.5	45.5	W.	4.20	...	...	Stratus ...	3-4	Cirrus ...	1-4	W. r.	...	...	...	Cloudy.
3		26.000 70	57	57	25.915 57	51	51	63.4	N. W.	10	.50	...	Stratus ...	4-4	Hidden ...	...	...	...	...	...	Cloudy.
4		27.175 66	61.5	61.5	27.075 61.5	53	53	51.1	N.	9	.64	...	Stratus ...	4-4	Hidden ...	...	...	...	...	...	Cloudy.

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Station 1	12 mid. night.	0	24.388	53	46	23.778	46	42	69	S. W.	36	6.48	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	Cloudy.
2			24.470	58	50	24.465	50	46.5	74.0	S. W.	20	2.00	340	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	Cloudy.
3			25.978	70	57	25.893	57	51	63.4	S. W.	10	.50	103	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	Cloudy.
4			27.160	66	62	27.060	62	54	56.1	S.	4	.08	....	Stratus	1-4	Hidden	....	....	.....	.....	.....	.....	Cloudy.

Meteorological record for June 11, 1873.

Meteorological record for June 11, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	a. m.																				
Station 1		23.765	63	48	23.697	48	48	100	N. W.	18	1.62	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	11 0	24.440	64	51.5	24.390	51	51	100	W.	37	6.84	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.038	66	56	25.862	56	56	100	N. W.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.131	67	63.5	27.028	64	56	57.5	N. W.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1		23.800	71	48	23.715	48	48	100	N. W.	26	3.38	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	12 m.	24.463	67	51	24.407	51	50.5	96.4	W.	38	7.22	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.950	68	56	25.869	56	56	100	N. W.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.149	68	64.5	27.044	65	61	78.3	W.	6	.18	98	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
	p. m.																				
Station 1		23.810	71	48	23.725	48	47	92	N. W.	30	4.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy
2	1 0	24.465	64	50.5	24.415	50	50	100	N. W.	31	4.80	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.980	69	56	25.897	56	56	100	N. W.	5	.12	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.175	69	64	27.067	64	60	78.0	N. W.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1		23.762	67	47	23.685	47	46	92	W.	40	8.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	2 0	24.470	59	49.5	24.431	49	49	100	W.	32	5.12	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.988	70	55	25.903	55	55	100	N. W.	5	.12	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.179	67	65	27.066	65	61	78.3	N. W.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1		23.750	62	47	23.664	47	46	92	W.	36	6.48	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	3 0	24.497	69	48.5	24.434	48	48	100	N. W.	43	9.24	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.992	64.5	54	25.926	54	53	93.3	N. W.	6	.18	....	Stratus	3-4	Cumulus.	1-4	N. W.	.....	.....	.....	Clearing up.
4		27.207	67	62.5	27.104	63	59	77.6	N.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1		23.760	60	46	23.698	46	45	92	N. W.	44	9.68	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	4 0	24.495	65	47	24.443	47	47	100	N. W.	36	6.48	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		26.005	68	55	25.944	55	53	86.9	N. W.	8	.32	....	Stratus	3-4	Cumulus.	1-4	N. W.	.....	.....	.....	Cloudy.
4		27.201	69	65	27.093	65.5	60	70.8	N. W.	8	.32	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1		23.750	58	45	23.692	45	44	92	W.	50	4.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.06	Cloudy.
2	4 57	24.500	61	47	24.457	47	47	100	W.	40	8.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		26.010	67	54	25.932	54	53	93.3	N. W.	8	.32	....	Stratus	3-4	Cumulus.	1-4	N. W.	.....	.....	.....	Cloudy.
4		27.200	69	63	27.092	63	57.5	69.6	W.	8	.32	....	Stratus	3-4	0	0	.....	.....	.....	.....	Cloudy.
Station 1		23.814	54	43	23.743	43	42	91	N. W.	36	6.48	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	6 0	24.530	68	47	24.480	47	46.5	96.1	W.	39	7.60	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		26.035	70	53	25.950	53	52	93.2	N. W.	6	.18	....	Stratus	3-4	Cumulus.	1-4	N. W.	.....	.....	.....	Cloudy.
4		27.231	69	61	27.123	61	57	76.9	N. W.	10	.50	....	Stratus	3-4	0	0	.....	.....	.....	.....	Cloudy.
Station 1		23.800	53	43	23.732	43	42	91	N. W.	30	4.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.540	70	46	24.488	46	46	100	W.	30	6.48	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3	7 0	26.050	68	52	25.989	52	51	93.0	N. W.	14	.72	....	Stratus	3-4	Cumulus	1-4	W.	.....	.....	.....	Fair
4		27.240	67	59	27.147	59	55	70.1	W.	6	.18	....	Stratus	3-4	Cumulus	2-4	.....	.....	.....	.....	Cloudy.

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Station 1			27. 774	60	42	23. 719	42	41	91	N. W.	38	7. 22	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
2			24. 510	55	44	24. 450	44	44	100	W.	44	9. 68	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
3		8 0	26. 040	66	50	25. 964	50	49	92. 7	N. W.	12	.72	....	Stratus	3-4	Cumulus	1-4	W.	.....	.....	.....	.....	.....	Cloudy.
4			27. 240	65	57	27. 142	57	53	75. 2	N. W.	6	.18	....	Stratus	2-4	Cumulus	2-4	.....	.....	.....	.....	.....	.....	Cloudy.
Station 1			23. 850	67	41	23. 773	41	40	91	N. W.	24	2. 88	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
2			24. 510	53	43	24. 484	43	43	100	W.	32	5. 12	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
3		9 0	26. 050	67	49	25. 972	49	48	29. 6	N. W.	12	.72	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
4			27. 260	67	56	27. 133	56. 5	52	71. 9	N. W.	4	.08	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
Station 1			23. 850	69	40	23. 769	40	30	91	N. W.	38	6. 48	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
2			24. 520	54	42	24. 492	42	42	100	N. W.	31	4. 80	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
3		10 0	26. 052	64	48	25. 981	48	47	92. 5	N. W.	12	.72	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
4			27. 270	62	54. 5	27. 178	55	51. 5	77. 4	N.	8	.32	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
Station 1			23. 850	60	39	23. 788	39	38	91	N. W.	23	2. 42	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
2			24. 538	56	40	24. 506	40	40	100	N. W.	20	2. 00	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
3		11 22	26. 062	64	45. 5	25. 991	45. 5	45. 5	100	N. W.	12	.72	....	Stratus	3-4	Cumulus	1-4	W.	.....	.....	.....	.....	.....	Cloudy.
4			27. 280	62	52. 5	27. 188	53	50	79. 8	N. W.	6	.18	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
Station 1			23. 840	64	39	23. 769	39	38	91	N. W.	24	2. 88	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
2		12 0	24. 543	57	39. 5	24. 509	39	39	100	N. W.	18	1. 62	780	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
3		mid.	26. 060	62	45	25. 993	45	45	100	N. W.	12	.72	168	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
4		night.	27. 285	62	52	27. 193	52. 5	50	82. 9	N. W.	4	.08	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.

Meteorological record for June 12, 1873.

		a. m.																						
Station 1			23. 845	69	39	23. 764	39	38	91	N. W.	20	2. 00	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
2			24. 550	57	38. 5	24. 516	38. 5	38. 5	100	N. W.	8	.32	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
3		1 0	26. 050	60	44	25. 988	44	43. 5	95. 8	N. W.	11	.60	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
4			27. 294	62	50	27. 2 2 51		48	79. 0	N. W.	3	.04	....	Stratus	2-4	Cumulus	1-4	N.	.....	.....	.....	.....	.....	Cloudy.
Station 1			23. 835	65	38	23. 762	38	38	100	N. W.	20	2. 00	....	Nimbus	4-4	Hidden	....	....	.....	1. 50 a. m.	.....	.....	.....	Light rain.
2			24. 567	64	37	24. 517	37	37	100	N. W.	22	2. 44	...	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
3		2 0	26. 051	59	43. 5	25. 991	43. 5	43	95. 8	N. W.	6	.18	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
4			27. 295	61	50	27. 205	51	48	79. 0	N.	3	.04	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
Station 1			23. 800	64	35	23. 748	35	34	90	N. W.	16	1. 28	...	Stratus	4-4	Hidden	....	....	.....	.....	2. 55 a. m.	.....	.....	Cloudy.
2			24. 560	65	37	24. 508	36. 5	36. 5	100	S. W.	16	1. 28	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
3		3 0	26. 060	59	42	26. 000	42	41. 5	95. 6	N. W.	5	.12	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
4			27. 295	59. 5	48	27. 209	48. 5	46	81. 5	N. W.	2	.02	....	Stratus	1-4	Cumulus	2-4	N.	.....	.....	.....	.....	.....	Cloudy.
Station 1			23. 830	54	33	23. 780	33	32	90	N. W.	12	.72	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
2			24. 579	62	35. 5	24. 534	35	35	100	S. W.	20	2. 00	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
3		4 0	26. 064	57	41. 5	26. 999	45	41	95. 6	N.	5	.12	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
4			27. 301	58	46	27. 218	47	44	77. 2	N. W.	1	.01	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
Station 1			23. 795	54	32	23. 745	32	31	89	N. W.	30	4. 50	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
2			24. 579	63	34. 5	24. 531	34	34	100	S. W.	14	.98	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
3		5 0	26. 070	56	39. 5	26. 017	39. 5	38	86. 3	N.	6	.18	....	Stratus	2-4	0	0	.....	.....	.....	.....	.....	.....	Fair.
4			27. 318	57	45	27. 2 46		43. 5	80. 5	S. E.	1	.01	....	Stratus	2-4	0	0	.....	.....	.....	.....	.....	.....	Fair.
Station 1			23. 855	73	34	23. 766	34	32	79	N. W.	8	.32	....	Stratus	2-4	0	0	.....	.....	.....	.....	.....	.....	Fair.
2			24. 590	63	34. 5	24. 442	34	33. 5	94. 7	N. W.	10	.50	...	Stratus	3-4	0	0	.....	.....	.....	.....	.....	.....	Clearing up.
3		6 0	26. 077	55	37. 5	26. 026	37. 5	37	95. 2	N.	2	.02	....	Stratus	1-4	Cumulus	1-4	N. W.	.....	.....	.....	.....	.....	Fair.
4			27. 332	54. 5	44	27. 258	44. 5	42	79. 8	E.	2	.02	....	Stratus	2-4	0	0	.....	.....	.....	.....	.....	.....	Fair.

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Meteorological record for June 12, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	Thermometer.		Hygrometer.		Relative humidity.	Wind.				Lower clouds.		Upper clouds.			Rain or snow.			Remarks.
			Attached.	Exposed.	Dry bulb.	Wet bulb.		Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction (motion from—)	Commen'd.	Ended.	Amount of rain or melted snow.	
	a. m.																			
Station 1	7 0	23.875	73	33	31		79	N. W.	4	.08		Cumulus	1-4	0	0					Fair.
2		24.570	35	34	33.5		100	N. W.	10	.50		Stratus	2-4	0	0					Clearing up.
3		26.090	56	38.5	36		86.3	N.	2	.02		Stratus	1-4	Cumulus	1-4	N. W.				Fair.
4		27.332	53	47	39		66	E.	2	.02		Stratus	1-4	Cirrus	1-4	N.				Fair.
Station 1		23.883	79	32	32		89	N. W.	30	4.50		Cumulus	1-4	0	0				.04	Fair.
2	7 57	24.590	60	35.5	35		100	N. W.	6	.18		Stratus	4-4	Hidden	4-4					Cloudy.
3		26.100	55	40.5	36.5	39.5	91.0	N.	5	.12		Stratus	1-4	Cumulus	2-4	N. W.				Fair.
4		27.333	53	47	43		62	E.	4	.08		Stratus	0	Cumulus	2-4	N. W.				Fair.
Station 1		23.904	69	33	32		89	N. W.	24	2.82		Cumulus	1-4	0	0					Fair.
2		24.590	39	38	37.5		85.6	W.	14	.98		Stratus	4-4	Hidden	4-4	N. W.				Cloudy.
3	9 0	26.122	49.5	41.5	39		78.4	N. W.	2	.02		Stratus	1-4	Cumulus	2-4	N. W.				Fair.
4		27.358	56	40.5	37		81.5	N. W.	4	.02		Stratus	1-4	Cumulus	2-4	N. W.				Fair.
Station 1		23.960	50	39	36		79	N. W.	18	1.63		Cumulus	1-4	0	0					Fair.
2		24.000	66	34	32		79	N. W.	24	2.88		Stratus	2-4	0	0					Fair.
3	10 0	24.605	65	38.5	36		81.1	N. W.	7	.24		Stratus	0	Cumulus	2-4	N. W.				Fair.
4		26.120	58	45	43		76.2	N. W.	6	.12		Stratus	0	Cumulus	2-4	N. W.				Fair.
Station 1		27.360	56	52	47		79.2	N.	6	.12		Stratus	0	Cumulus	2-4	N. W.				Fair.
2		23.915	68	35	34		90	N. W.	20	2.00		Cumulus	1-4	0	0					Fair.
3	11 0	24.625	69	40.5	37.5		77.6	N. W.	16	1.28		Stratus	3-4	0	0					Fair.
4		26.130	58	46	42.5		72.6	N. W.	5	.12		Stratus	0	Cumulus	3-4	N. W.				Fair.
Station 1		27.362	57	53	46		54.4	N. W.	6	.18		Stratus	0	Cumulus	2-4	N. W.				Fair.
2		23.932	72	38	34		80	N. W.	16	1.28		Cumulus	1-4	0	0					Fair.
3	12 m.	24.626	66	49	43.5		60.9	N. W.	24	2.42		Stratus	3-4	0	0					Fair.
4		26.136	59	49	43		60.2	N. W.	6	.18		Stratus	0	Cumulus	3-4	N. W.				Fair.
Station 1		27.399	56	50	48		51.2	N. W.	8	.32		Stratus	0	Cumulus	2-4	N. W.				Fair.
	p. m.																			
Station 1		23.858	68	38	35		90	N. W.	20	2.00		Stratus	4-4	Hidden	4-4					Cloudy.
2	1 0	24.623	67	41	37.5	37.5	57.5	N. W.	14	.98		Stratus	3-4	0	0					Fair.
3		26.140	59	44.5	40		60.2	N. W.	7	.24		Stratus	0	Cumulus	3-4	N. W.				Fair.
4		27.302	60.5	47	43		60.6	W.	8	.32		Stratus	1-4	Cumulus	2-4	N. E.				Cloudy.
Station 1		23.940	65	35	34		80	N. W.	18	1.62		Stratus	4-4	Hidden	4-4					Cloudy.
2		24.630	54	40	37		77.3	N. W.	13	.84		Stratus	3-4	0	0					Fair.
3	2 0	26.180	48	47	42		69.4	N. W.	7	.24		Stratus	0	Cumulus	3-4	N. W.				Fair.
4		27.305	54	54	46		60.1	N. W.	4	.08		Stratus	0	Cumulus	3-4	N. E.				Cloudy.
Station 1		23.915	61	35	34		90	N. W.	24	2.42		Stratus	3-4	Hidden	4-4					Cloudy.
2		24.595	60	44	41		77.6	N. W.	14	.98		Stratus	3-4	0	0					Fair.
3	3 0	26.144	51	51	46		71.1	N. W.	7	.24		Stratus	0	Cumulus	3-4	N. W.				Fair.
4		27.300	60	60	47		56.6	N. W.	4	.08		Stratus	0	Cumulus	3-4	N. W.				Fair.

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Station 1			24.952	60	36	24.890	36	35	79	N. W.	20	2.60	....	Stratus	4-4	Hidden													
2			24.644	58	38.5	24.606	37.5	36.5	80.4	N. W.	13	.84	....	Stratus	3-4	0	0													
3	4	0	26.160	60	47.5	26.114	47.5	43	66.3	N. W.	6	.18	....	0	0	Cumulus	3-4	N. W.											Cloudy
4			27.401	59	50	27.316	50	51	53.7	N. W.	4	.08	....	0	0	Cumulus	2-4	N. W.											Fair.
Station 1			23.963	60	33	23.886	33	32	79	N. W.	18	1.62	....	Stratus	4-4	Hidden													Fair.
2			24.658	57	37	24.624	37	36	90.5	W.	12	.72	....	Stratus	4-4	Hidden													Fair.
3	4	57	26.202	65	44	26.122	44	41	75.6	N. W.	6	.18	....	0	0	Cumulus	3-4	N. W.											Cloudy.
4			27.432	58	51.5	27.349	52.5	45.5	53.9	N. W.	5	.12	....	Stratus	4-4	Hidden													Cloudy.
Station 1			23.990	66	33	23.915	33	32	89	N. W.	22	2.42	....	Stratus	4-4	Hidden													Fair.
2			24.668	58	36	24.631	36	35	90.0	N. W.	13	.84	....	Stratus	4-4	Hidden													Cloudy.
3	6	0	26.290	67	42.5	26.142	42.5	40	78.9	N. W.	5	.12	....	0	0	Cumulus	3-4	N. W.											Cloudy.
4			27.430	56	50	27.352	50	45	64.6	N. W.	2	.02	....	Stratus	3-4	0	0												Fair.
Station 1			24.000	63	33	23.931	33	31	79	N. W.	16	1.28	....	0	0	Cumulus	2-4	N. W.											Cloudy.
2			24.693	57	36	24.659	36	35	90.0	N. E.	8	.32	....	Stratus	4-4	Hidden													Fair.
3	7	0	26.220	64.5	46	26.148	46	42	69.1	0	0	0	....	0	0	Cumulus	2-4	N. W.											Cloudy.
4			27.435	56	49	27.357	50	45	64.6	0	0	0	....	Stratus	1-4	Cirrus	1-4												Fair.
Station 1			24.022	61	32	23.957	32	31	89	N.	24	2.88	....	Stratus	4-4	Hidden													Cloudy.
2			24.680	53	35	24.654	35	34	89.8	N. E.	14	.98	....	Stratus	2-4	0	0	0											Fair.
3	8	0	26.235	63	43	26.166	43	41	83.3	N. E.	7	.24	....	0	0	Cumulus	1-4	N.											Clear.
4			27.455	55	46	27.380	46.5	44	80.7	N. W.	2	.02	....	Stratus	2-4	0	0												Fair.
Station 1			24.030	67	33	24.952	33	31	79	N.	30	4.50	....	0	0	0	0												Clear.
2			24.698	59	36	24.659	36	34	80.2	N. E.	11	.60	....	Stratus	1-4	0	0												Clear.
3	9	0	26.218	64	42.5	26.147	42.5	39	70.6	N. E.	12	.72	....	0	0	0	0												Clear.
4			27.458	60	43	27.371	44	42	83.6	N. W.	2	.02	....	0	0	0	0												Clear.
Station 1			24.050	69	33	23.968	33	31	79	N.	32	5.12	....	0	0	0	0												Clear.
2			24.698	55	36	24.668	36	34	80.2	N. E.	12	.72	....	0	0	0	0												Clear.
3	10	0	26.230	63	41	26.161	41	39	82.4	N. E.	12	.72	....	0	0	0	0												Clear.
4			27.468	59	42	27.383	42.5	40	78.9	N.	2	.02	....	0	0	0	0												Clear.
Station 1			24.070	65	32	23.997	32	30	79	N.	36	6.48	....	0	0	0	0												Clear.
2			24.719	57	36	24.684	36	34	80.2	N. E.	14	.98	....	0	0	0	0												Clear.
3	11	22	26.250	65	41	26.176	41	39	82.4	N. E.	12	.72	....	0	0	0	0												Clear.
4			27.485	56	41	27.407	41.5	40	86.9	N.	2	.02	....	0	0	0	0												Clear.
Station 1			24.070	64	32	23.999	32	30	79	N.	40	8.00	....	0	0	0	0												Clear.
2	12	0	24.729	61	37	24.685	36	33	70.5	N. E.	19	1.88	370	0	0	0	0												Clear.
3	mid-		26.255	64	42	26.184	42	39.5	86.6	N. E.	12	.72	118	0	0	0	0												Clear.
4	night.		27.470	56	40	27.392	40.5	39	86.6	N.	4	.08	....	0	0	0	0												Clear.

Meteorological record for June 13, 1873.

			a. m.																										
Station 1			24.065	60	33	24.002	33	31	79	N.	30	4.50	....	0	0	0	0												Clear.
2			24.770	72	37	24.702	36.5	34	75.6	N. E.	13	.84	....	0	0	0	0												Clear.
3	1	0	26.240	55	43	26.189	43	39	66.9	E.	8	.32	....	0	0	0	0												Clear.
4			27.479	55	39.5	27.404	40.5	39	86.6	0	0	0	....	Stratus	3-4	0	0												Cloudy.
Station 1			24.100	72	33	24.012	33	31	79	N. E.	12	.72	....	0	0	0	0												Clear.
2			24.768	63	36.5	24.719	36	33.5	75.3	N. E.	14	.98	....	0	0	0	0												Clear.
3	2	0	26.248	55	42	26.197	42	38.5	63.9	E.	5	.12	....	0	0	0	0												Clear.
4			27.482	53	39	27.412	40	37.5	77.6	0	0	0	...	Stratus	2-4	0	0												Clearing.

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Meteorological record for June 13, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	a. m.																				
Station 1		24.095	73	32	24.005	32	31	89	0	0	0	....	0	0	0	0					Clear.
2	3 0	24.776	67	36	24.719	36	33.5	75.3	N. E.	11	.60	....	Stratus	1-4	0	0					Fair.
3		26.257	55.5	42	26.205	42	38	66.1	E.	3	.04	....	0	0	0	0					Clear.
4		27.492	51	39	27.427	40	38	82.0	0	0	0	....	0	0	0	0					Clear.
Station 1		24.105	75	32	24.010	32	30	79	0	0	0	....	Stratus	1-8	0	0					Clear.
2	4 0	24.780	69	36	24.726	36	32.5	66.7	N. E.	10	.50	....	Stratus	1-4	0	0					Fair.
3		26.240	54	42	26.192	42	38	66.1	S. E.	4	.08	....	0	0	0	0					Clear.
4		27.495	51	39	27.430	40	38	82.0	0	0	0	....	0	0	0	0					Clear.
1		24.100	75	34	24.005	34	30	61	N. E.	8	.32	....	0	0	0	0					Clear.
2		24.758	63	37.5	24.709	37	33	61.9	N. E.	8	.32	....	Stratus	1-4	Cirrus	1-4	N. s				Fair.
3	5 0	26.240	55	42	26.188	42	39	74.4	S.	2	.02	....	0	0	Cirrus	3-4					Fair.
4		27.492	51	39	27.427	40	38	82.0	N. E.	3	.04	....	Stratus	1-4	0	0					Fair.
Station 1		24.095	70	35	24.011	35	31	61	0	0	0	....	0	0	0	0					Clear.
2		24.750	61	40	24.7 6	39.5	35.5	64	N. E.	8	.32	....	Stratus	1-4	Cirrus	1-4	N. s.				Fair.
3	6 0	26.246	57	43	26.193	43	39	66.9	S. E.	2	.02	....	0	0	Cirrus	3-4					Fair.
4		27.490	50.5	40.5	27.426	41.5	39	78.4	N. E.	4	.08	....	0	0	Cirrus	2-4					Fair.
Station 1		24.105	75	37	24.010	37	33	69	N. E.	8	.32	....	Stratus	1-8	Cirrus	1-4					Fair.
2		24.749	58	40.5	24.712	40.5	35.5	55.7	E.	7	.24	....	Stratus	1-4	Cirrus	1-4	E.				Fair.
3	7 0	26.240	56	45	26.196	45	41	68.4	E.	2	.02	....	0	0	Cirrus	3-4					Fair.
4		27.485	53	48	27.415	49	44	63.8	N. E.	4	.08	....	0	0	Cirrus	2-4					Fair.
Station 1		24.115	75	38	24.020	38	34	63	N. E.	5	.12	....	0	0	Cirro-strat	1-4					Fair.
2		24.770	62	42.5	24.714	42.5	39.5	74.7	E.	7	.24	....	Stratus	2-4	Cirrus	2-4	E.				Cloudy.
3	7 57	26.26	57.5	47	26.203	47	42	62.5	W.	1	.00	....	0	0	Cirrus	3-4	0				Fair.
4		27.492	54.5	52	27.418	53	45	48.3	N. E.	2	.02	....	0	0	Cirrus	2-4	N.				Fair.
Station 1		24.100	64	39	24.029	30	30	72	0	0	0	....	0	0	Cirrus	2-4					Fair.
2		24.760	62	47	24.714	46	41	61.7	W.	2	.02	....	Stratus	1-4	Cirrus	2-4					Fair.
3	9 0	26.265	57	50	26.210	50	45	64.6	W.	4	.08	....	0	0	Cirrus	2-4					Fair.
4		27.490	56	56	27.412	56	46	51.2	N. W.	4	.08	....	Stratus	1-4	Cirrus	2-4					Fair.
Station 1		24.110	62	42	24.043	42	38	65	0	0	0	....	0	0	Cumulus	2-4					Fair.
2		24.780	62	48.5	24.734	47.5	42	50.4	W.	2	.02	....	0	0	Cumulus	2-4	N.				Fair.
3	10 0	26.274	58	54.5	26.214	54.5	47	52.7	W.	1	.01	....	0	0	Cumulus	3-4					Fair.
4		27.500	57	56	27.420	56	49	67.5	E.	4	.08	....	Stratus	2-4	Cirrus	1-4					Cloudy.
Station 1		24.110	64	42	24.033	42	38	65	0	0	0	....	0	0	Cumulus	3-4					Fair.
2		24.775	63	50	24.729	49	44	59.0	W.	1	.01	....	0	0	Cumulus	2-4	W.				Fair.
3	11 0	26.270	59	56	26.210	56	47	57.0	W.	3	.05	....	0	0	Cumulus	2-4	S. W.				Fair.
4		27.494	60	60	27.401	60	49	65.1	W.	5	.12	....	Cumulus	2-4	Cirrus	1-4					

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Meteorological record for June 13, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
Station 1...	12 0 mid-night.	24.017	64	38	23.946	38	36	80	N. W.	12	.72	...	0	0	0	0	.....	.....	.....	.....	Clear.
2...		24.670	56	39	24.638	39	37.5	80.2	S. E.	13	.84	260	0	0	0	0	.....	.....	.....	.....	Clear.
3...		26.198	64.5	44	26.126	44	42	83.6	S. E.	10	.50	117	0	0	0	0	.....	.....	.....	.....	Clear.
4...		27.398	61	45	27.307	45	44	92.0	S.	4	.08	...	0	0	0	0	.....	.....	.....	.....	Clear.

Meteorological record for June 14, 1873.

	Time of observation.																				
	a. m.																				
Station 1...		24.025	65	36	23.952	36	35	90	N. W.	8	.32	....	0	0	0	0	.....	.....	.....	.....	Clear.
2...	1 0	24.660	57	38.5	24.625	38.5	37	86.0	S. E.	12	.72	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
2...		26.174	62	44	26.107	44	41	75.6	E.	5	.12	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Clear.
4...		27.398	58	48	27.315	49	44	63.8	S.	3	.04	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1...		24.030	73	36	23.940	36	34	80	0	0	0	....	0	0	Cumulus..	1-8	.....	.....	.....	.....	Fair.
2...	2 0	24.658	55	37	24.628	37	35.5	85.4	S. E.	1	.01	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
3...		26.167	60	44	26.105	44	42	83.6	E.	5	.12	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Clear.
4...		27.392	58	43.5	27.309	44.5	42	79.8	S. W.	2	.02	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1...		24.040	79	36	23.937	36	34	80	0	0	0	....	Cumulus..	1-8	0	0	.....	.....	.....	.....	Fair.
2...	3 0	24.670	64	36.5	24.620	36.5	36	95.0	S. E.	11	.60	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
3...		26.160	60	43	26.098	43	41.5	79.4	0	0	0	....	0	0	0	0	.....	.....	.....	.....	Clear.
4...		27.375	55	43	27.297	44	42	83.6	W.	3	.04	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1...		24.035	80	36	23.930	36	32	61	0	0	0	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
2...	4 0	24.668	71	38	24.602	37.5	35.5	80.9	S. E.	2	.02	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
3...		26.157	58.5	43	26.098	43	41.5	79.4	S. E.	2	.02	....	0	0	Cumulus..	1-4	S.	.....	.....	.....	Clear.
4...		27.360	54	42.5	27.297	43.5	41.5	83.4	N.	3	.04	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1...		24.025	77	36	23.926	36	33	70	N. W.	4	.08	....	Stratus ..	1-4	0	0	.....	.....	.....	.....	Fair.
2...	5 0	24.650	65	38	24.597	37.5	30	85.6	S. E.	13	.84	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
3...		26.141	57	43	26.086	43	41.5	79.4	S. E.	2	.02	....	0	0	Cumulus..	1-4	S.	.....	.....	.....	Fair.
4...																					
Station 1...		24.015	73	36	23.925	36	33	70	W.	10	.50	....	Stratus ...	4-4	Hidden...		.....	.....	.....	.....	Fair.
2...	6 0	24.640	59	41	24.601	40	36.5	66.8	S. E.	19	1.80	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
3...		26.134	56	44.5	26.060	44.5	42	70.8	N. W.	4	.08	....	0	0	Cumulus..	2-4	.....	.....	.....	.....	Fair.
4...		27.364	50	45.5	27.286	46.5	44	80.7	N.	3	.04	....	0	0	Cumulus..	2-4	S.	.....	.....	.....	Cloudy.
Station 1...		24.100	72	36	24.014	36	35	80	W.	10	.50	....	Stratus ...	4-4	Hidden...		.....	.....	.....	.....	Fair.
2...	7 0	24.640	60	41	24.600	41	38.5	74.1	S. E.	20	2.00	....	Stratus ...	1-4	Cirrus....	1-4	N. W.	.....	.....	.....	Fair.
3...		26.100	58	44.5	26.026	44.5	42	77.7	W.	4	.08	....	0	0	Cumulus..	2-4	N. W.	.....	.....	.....	Fair.
4...		27.350	51	46.5	27.272	46.5	44	80.7	N.	3	.04	....	0	0	Cumulus..	2-4	N. W.	.....	.....	.....	Fair.

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Meteorological record for June 14, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	p. m.																				
Station 1	8 0	23.930	64	39	23.859	39	30	26	S. E.	2	.02	....	Cumulus	1-4	Cirrus	2-4	W.	.....	.....	.....	Fair.
2		24.575	59	44	24.536	43.5	33	18.3	S. E.	23	2.64	....	Stratus	1-4	Cirrus	1-4	S. W.	.....	.....	.....	Fair.
3		26.072	63	46	26.013	46	40	54.3	0	0	0	....	0	0	Cirrus	3-4		.....	.....	.....	Fair.
4		27.250	59	44.5	27.166	45	42	76.2	0	0	0	....	Stratus	1-4	Cirrus	1-4		.....	.....	.....	Fair.
Station 1	9 0	23.931	66	38	23.856	38	29	24	S. E.	6	.18	....	Stratus	1-4	Cirrus	2-4	W.	.....	.....	.....	Fair.
2		24.585	59	42.5	24.526	42	32	19.2	S. E.	26	3.38	....	Stratus	1-4	Cirrus	1-4		.....	.....	.....	Fair.
3		26.070	62.5	46	26.002	46	38	43.0	0	0	0	....	0	0	Cirrus	3-4	S. W.	.....	.....	.....	Fair.
4		27.265	62	45	27.174	45.5	42	72.6	N.	2	.02	....	Stratus	1-3	0	0		.....	.....	.....	Clear.
Station 1	10 0	23.930	66	39	23.855	39	29	17	S. E.	8	.32	....	Stratus	1-4	0	0		.....	.....	.....	Fair.
2		24.565	65	44.5	24.513	44	32	8.8	S. E.	16	1.28	....	Stratus	1-4	0	0		.....	.....	.....	Fair.
3		26.045	58	47	25.987	47	37	27.6	0	0	0	....	0	0	Cirrus	3-4	S. W.	.....	.....	.....	Fair.
4		27.253	61	44	27.165	45	41	68.4	0	0	0	....	Stratus	1-3	0	0		.....	.....	.....	Clear.
Station 1	11 22	23.900	66	41	23.825	41	36	56	S. E.	2	.02	....	Stratus	1-1	Cumulus	1-4		.....	.....	.....	Fair.
2		24.555	66	45	24.501	45	40	60.7	S. W.	10	.50	....	Stratus	1-4	0	0		.....	.....	.....	Fair.
3		26.025	58	46	25.967	46	39	47.1	S. W.	5	.12	....	0	0	Cirrus	1-4	S. W.	.....	.....	.....	Clear.
4		27.238	50	44	27.152	44	41	75.6	N.	2	.02	....	Stratus	1-4	0	0		.....	.....	.....	Fair.
Station 1	12 0 mid-night.	23.900	69	41	23.818	41	37	65	S. E.	4	.08	....	Stratus	1-4	Cumulus	1-4		.....	.....	.....	Fair.
2		24.545	65	45.5	24.493	45	41	68.4	S. W.	10	.50	230	Stratus	1-4	0	0		.....	.....	.....	Fair.
3		26.030	61	46	25.966	46	40	54.3	S. W.	10	.50	108	0	0	Cirrus	1-4	S. W.	.....	.....	.....	Clear.
4		27.230	60	43	27.144	43.5	40	71.3	N.	2	.02	....	Stratus	1-4	0	0		.....	.....	.....	Fair.

Meteorological record for June 15, 1873.

	a. m.																				
Station 1	1 0	24.000	73	41	23.910	41	38	73	S.	8	.32	....	Cumulus	2-4	0	0		.....	.....	.....	Fair.
2		24.550	69	44.5	24.468	44	41.5	70.6	S. W.	8	.32	....	Stratus	2-4	0	0		.....	.....	.....	Fair.
3		26.022	63.5	46.5	25.948	46.5	40	51.3	E.	1	.00	....	Stratus	2-4	0	0		.....	.....	.....	Fair.
4		27.240	58.5	42	27.158	43	30.5	70.9	N.	3	.04	....	Stratus	1-4	Cirrus	1-4	N.	.....	.....	.....	Fair.
Station 1	2 0	23.905	73	41	23.905	41	34	41	0	0	0	....	Cumulus	2-4	Cumulus	3-4		.....	.....	.....	Cloudy.
2		24.550	68	46	24.492	45.5	42	79.8	S. W.	4	.08	....	Stratus	4-4	Hidden	..		.....	.....	.....	Cloudy.
3		25.990	62.5	48	25.931	48	44	70.4	E	1	.01	....	Stratus	2-4	0	0		.....	.....	.....	Fair.
4		27.220	58	45	27.141	46	42	69.1	N. W.	2	.02	....	Stratus	1-4	0	0		.....	.....	.....	Fair.
Station 1		23.900	74	41	23.900	41	34	41	0	0	0	....	Cumulus	2-4	Cumulus	3-4		.....	.....	.....	Cloudy.
2		24.540	70	44	24.477	43	41	87.4	S. W.	4	.08	....	Stratus	4-4	Hidden	..		.....	.....	.....	Cloudy.
3	3 0	25.980	64	48	25.910	48	44	70.4	0	0	0	....	Stratus	3-4	Hidden	..		.....	.....	.....	Cloudy.
4		27.191	61	45	27.110	45	42	75.0	N.	4	.04	....	Stratus	2-4	0	0		.....	.....	.....	Fair.
		27.180	62	44	27.110	45	42	75.0													

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46 W

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Meteorological record for June 15, 1873.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	p. m.																				
Station 1		23.832	62	47	23.765	47	43	69	N. W.	8	.32	....	Hazy	....	Stratus	3-4	N. W.	.....	.....	.....	Fair.
2	4 57	24.475	58	50.5	24.438	50.5	47	75.3	W.	17	1.44	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.968	61.5	58	25.903	58	52	64.1	W.	4	.08	....	Stratus	3-4	Cumulus	1-4	W.	.....	.....	.....	Cloudy.
4		27.175	69	64	27.067	64	55	52.7	N. W.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1		23.829	61	47	23.764	47	45	85	N. W.	23	2.64	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	6 0	24.485	63	51	24.437	51	47.5	75.6	N. W.	19	1.80	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.960	63	58	25.891	58	53	69.8	W.	2	.02	....	Stratus	2-4	Cumulus	1-4	W.	.....	.....	.....	Fair.
4		27.160	70	66.5	27.050	67.5	57.5	50.3	N. W.	1	.01	....	0	0	Cumulus	3-4	N. W.	.....	.....	.....	Cloudy.
Station 1		23.802	61	46	23.738	46	44	85	N. W.	36	6.48	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Threatening.
2	7 0	24.480	61	50.5	24.437	50.5	48	82.2	N. W.	22	2.42	....	Stratus	3-4	0	0	.....	.....	.....	.....	Fair.
3		25.970	66.5	57	25.893	57	52.5	71.9	N. W.	4	.08	....	Stratus	2-4	Cumulus	1-4	W.	.....	.....	.....	Fair.
4		27.172	68.5	63	27.067	63	57	67.0	N. W.	1	.01	....	Stratus	1-4	Cumulus	1-4	N. W	.....	.....	.....	Fair.
Station 1		23.802	63	46	23.734	46	44	85	N. W.	40	8.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Threatening.
2	8 0	24.483	60	49	24.442	49	47	85.3	W.	14	.98	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.972	70	55	25.887	55	51	74.3	0	0	0	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.
4		27.150	65.5	56	27.051	56	53	80.9	N.	2	.02	....	Stratus	1-4	Cumulus	1-4	N. W	.....	.....	.....	Fair.
Station 1		23.804	72	46	23.729	46	45	92	N. W.	36	6.48	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Threatening.
2	9 0	24.490	59	49	24.451	48.5	48	96.2	W.	15	1.12	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.980	67.5	54.5	25.901	54.5	50.5	73.8	0	0	0	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.
4		27.170	65	55	27.072	55	52	80.5	N.	4	.08	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.
Station 1		23.840	72	46	23.752	46	45	92	N. W.	38	7.22	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Threatening.
2	10 0	24.501	68	49	24.461	49	48.5	96.3	W.	16	1.28	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.980	67	54.5	25.902	54.5	52	83.6	N. W.	1	.01	....	0	0	Cumulus	1-4	N. W.	.....	.....	.....	Fair.
4		27.152	64.5	55	27.055	55.5	52.5	80.7	N. W.	4	.08	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.
Station 1		23.820	65	46	23.747	46	46	100	N. W.	36	6.48	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Threatening.
2	11 22	24.505	70	49.5	24.442	49.5	49	96.3	W.	19	1.80	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.972	68	54.5	25.891	54.5	52	83.6	N. W.	5	.12	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.150	63	53	27.057	54	51.5	83.4	N.	4	.08	....	Stratus	2-4	0	0	.....	.....	.....	.....	Fair.
Station 1		23.800	64	46	23.729	46	45	92	N. W.	36	6.48	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Threatening.
2	12 0	24.498	68	49.5	24.440	49.5	49	96.3	W.	13	.84	273	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3	mid-	25.972	66.5	54.5	25.895	54.5	53	89.9	0	0	0	43	Stratus	3-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4	night.	27.145	62	54	27.054	55	52.5	83.7	N.	4	.08	...	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.

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	a. m.																					
Station 1		23.820	61	47	23.755	47	47	100	N. W.	24	2.88	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Threatening.
2	1 0	24.490	65	50	24.432	50	49.5	96.3	W.	24	2.88	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
3		25.968	65	55	25.894	55	54	93.4	W.	2	.03	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
4		27.138	64	57	27.042	57.5	54	78.4	N.	2	.02	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
Station 1		23.840	60	48	23.777	48	48	100	N. W.	20	2.00	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Threatening.
2	2 0	24.510	71	50.5	24.445	50.5	50.5	100	W.	19	1.80	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
3		25.963	68	56	25.887	56	55	93.5	W.	5	.12	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
4		27.130	65	57	27.032	57	55	87.4	N. W.	2	.02	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
Station 1		23.835	59	48	23.775	48	48	100	N. W.	18	1.62	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Threatening.
2	3 0	24.497	69	50	24.436	50	50	100	W.	19	1.80	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
3		25.962	64.5	56	25.890	56	55	93.5	W.	1	.01	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
4		27.148	67	57	27.045	57.5	55.5	87.5	0	0	0	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
Station 1		23.840	59	48	23.760	48	48	100	N. W.	12	.72	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Threatening.
2	4 0	24.500	67	50.5	24.444	50.5	50.5	100	W.	20	2.00	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
3		25.972	68	56.5	25.891	56.5	55	90.4	W.	2	.02	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
4		27.145	66	57.5	27.045	58	56	87.6	N.	2	.02	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
Station 1		23.840	59	48	23.782	48	48	100	N. W.	10	.50	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Threatening.
2	5 0	24.501	70	50	24.438	50	50	100	W.	18	1.62	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
3		25.971	66	56	25.895	56	55	93.5	N. W.	1	.01	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
4		27.155	65	58	27.057	58	56	87.6	0	0	0	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
Station 1		23.835	57	47	23.777	47	47	100	N. W.	18	1.62	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Threatening.
2	6 0	24.490	67	50.5	24.434	50.5	50.5	100	W.	22	2.42	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
3		25.980	66.5	56	25.903	56	55	93.5	W.	1	.01	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
4		27.165	64	58.5	27.069	59	56	81.9	N.	2	.02	....	Stratus	3-4	0	0	....	....	....	....	....	Cloudy.
Station 1		23.839	57	47	23.783	47	47	100	N. W.	14	.98	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Clearing up.
2	7 0	24.520	66	50	24.466	50	50	100	N. W.	13	.84	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
3		25.990	67	56.5	25.912	56.5	55	90.4	W.	1	.01	....	Stratus	2-4	Cumulus	1-4	W.	....	....	....	....	Fair.
4		27.176	64	60	27.080	60	57	82.2	0	0	0	....	Stratus	2-4	Cirrus	1-4	....	....	....	....	....	Fair.
Station 1		23.860	57	49	23.804	49	47	85	N. W.	12	.72	....	Cumulus	1-4	Hazy	....	....	....	....	....	....	Fair.
2	7 57	24.528	61	52.5	24.485	52	51	93.0	W.	6	.18	....	Stratus	1-4	0	0	....	....	....	....	....	Fair.
3		25.995	67	58	25.917	58	55	81.6	W.	2	.62	....	Stratus	1-4	Cumulus	1-4	W.	....	....	....	....	Fair.
4		27.176	66	65	27.076	64.5	59	72.7	0	0	0	....	Hazy	....	Cirrus	1-4	....	....	....	....	....	Fair.
Station 1		23.865	56	50	23.811	50	47	78	N. W.	8	.32	....	Cumulus	1-4	0	0	....	....	....	....	....	Fair.
2	9 0	24.500	59	54	24.461	53.5	51	89.7	W.	5	.12	....	Stratus	2-4	0	0	....	....	....	....	....	Fair.
3		25.985	66	60	25.909	60	56	76.5	W.	2	.02	....	Smoky	....	Cumulus	1-4	W.	....	....	....	....	Fair.
4		27.179	68	66	27.074	66	58	58.8	0	0	0	....	Hazy	....	Cumulus	1-4	N.	....	....	....	....	Fair.
Station 1		23.870	60	54	23.807	54	51	79	N. W.	2	.02	....	Cumulus	1-4	0	0	....	....	....	....	....	Clear.
2	10 0	24.500	59	57	24.461	55.5	53.5	87.0	W.	7	.24	....	Stratus	2-4	Cumulus	1-4	....	....	....	....	....	Fair.
3		25.975	66.5	62	25.898	62	56	66.5	W.	1	.01	....	Smoky	....	Cumulus	1-4	W.	....	....	....	....	Fair.
4		27.163	68	67	27.058	66.5	58.5	59.1	0	0	0	....	Hazy	....	Cumulus	1-4	N. W.	....	....	....	....	Fair.
Station 1		28.885	60	55	23.822	55	51	73	N. W.	4	.08	....	Hazy	....	Cumulus	2-4	N. W.	....	....	....	....	Fair.
2	11 0	24.510	60	57.5	24.469	57.5	57	86.8	W.	12	.72	....	Stratus	1-4	Cumulus	1-4	N. W.	....	....	....	....	Hazy.
3		25.982	68	65	25.901	65	57	58.2	S. W.	6	.18	....	Smoky	....	Cumulus	1-4	W.	....	....	....	....	Fair.
4		27.173	70	70	27.063	70	59	48.2	N. W.	4	.08	....	Hazy	....	Cumulus	1-4	N. W.	....	....	....	....	Fair.
Station 1		23.870	60	55	23.812	55	51	73	0	0	0	....	Hazy	....	Cumulus	1-4	N. W.	....	....	....	....	Fair.
2	2 m.	24.527	67	60	24.471	59.5	58	90.9	W.	18	1.62	....	Stratus	1-4	Cumulus	1-4	N. W.	....	....	....	....	Hazy.
3		25.988	69	66	25.905	66	57	54.3	S. W.	6	.18	....	Smoky	....	Cumulus	1-4	W.	....	....	....	....	Fair.
4		27.170	73	72	27.053	72.5	60	45.7	N. W.	6	.18	....	Hazy	....	Cumulus	1-4	N. W.	....	....	....	....	Fair.

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Meteorological record for June 16, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	p. m.																				
Station 1	1 0	23.875	61	56	23.810	56	50	62	N. W.	8	.32	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	Fair.
2		24.515	72	62.5	24.448	62	54	56.1	N. W.	18	1.62	....	Hazy	....	Cir. & cum.	1-4	N. W.	.....	.....	.....	Fair.
3		25.980	68.5	69	25.897	69	59	51.8	N. W.	7	.24	....	Smoky	....	Cumulus	1-4	N. W.	.....	.....	.....	Clear.
4		27.165	74.5	75	27.044	75.5	60	36.7	N. W.	8	.32	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	Fair.
Station 1	2 0	23.820	61	54	23.755	54	49	67	N. W.	24	2.88	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	Fair.
2		24.500	64	58.5	24.450	58	51	58.4	N. W.	21	2.20	....	Hazy	....	Cir. & cum.	2-4	N. W.	.....	.....	.....	Fair.
3		25.980	69	67	25.897	67	57	50.3	N. W.	8	.32	....	Smoky	....	Cumulus	2-4	W.	.....	.....	.....	Fair.
4		27.170	77.5	74	27.042	74	61	43.3	N. W.	12	.72	....	Hazy	....	Cumulus	2-4	W.	.....	.....	.....	Fair.
Station 1	3 0	23.800	60	54	23.738	54	49	67	N. W.	20	2.00	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	Fair.
2		24.475	62	58	24.430	57.5	50	55.3	N. W.	23	2.64	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	Fair.
3		25.958	70	67	25.873	67	57	50.3	N. W.	8	.32	....	Stratus	1-4	Cumulus	2-4	N. W.	.....	.....	.....	Fair.
4		27.14	77	74	27.013	74	61	43.3	W.	10	.50	....	Hazy	....	Cumulus	2 4	N.	.....	.....	.....	Fair.
Station 1	4 0	23.789	60	53	23.727	53	48	66	N. W.	28	3.92	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	Fair.
2		24.445	60	58	24.404	57.5	51	60.9	N. W.	32	5.12	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	Fair.
3		25.930	69	68	25.847	68	58	51.1	W.	8	.32	....	Smoky	....	Cumulus	3-4	W.	.....	.....	.....	Fair.
4		27.120	76	73	26.996	74	62	47.2	W.	8	.32	....	Stratus	1-4	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
Station 1	4 57	23.770	59	51	23.710	51	48	78	N. W.	30	4.50	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	Fair.
2		24.425	59	56	24.326	55.5	51	71.4	N. W.	18	1.62	....	Hazy	....	Cirro-cum	3-4	N. W.	.....	.....	.....	Fair.
3		25.903	68	64	25.822	64	56.5	59.7	W.	6	.18	....	Stratus	2-4	Cumulus	1-4	W.	.....	.....	.....	Fair.
4		27.116	74.5	69	26.995	69	59.9	54.0	N. W.	10	.50	....	Cumulus	1-4	Cirrus	2-4	N. W.	.....	.....	.....	Cloudy.
Station 1	6 0	23.739	59	49	23.680	49	46	77	N. W.	32	5.12	....	Stratus	1-4	Cumulus	3-4	N. W.	.....	.....	.....	Fair.
2		24.420	59	55	24.381	54.5	50	70.9	W.	25	3.12	....	Stratus	1-4	Cir. & cum.	2-4	W.	.....	.....	.....	Fair.
3		25.905	72	62.5	25.815	62.5	56	64.1	W.	7	.24	....	0	0	Cirrus	3-4	W.	.....	.....	.....	Fair.
4		27.120	74.5	66.5	26.999	66.5	58.5	59.1	N. W.	4	.08	....	Stratus	1-4	Cirrus	2-4	W.	.....	.....	.....	Cloudy.
Station 1	7 0	23.730	62	48	23.664	48	46	85	N. W.	32	5.12	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Cloudy.
2		24.410	60	52.5	24.309	52	49	79.4	W.	34	5.78	....	Stratus	2-4	Cirrus	1-4	W.	.....	.....	.....	Fair.
3		25.903	72	60.5	25.813	60.5	54.5	65.3	W.	7	.24	....	0	0	Cumulus	2-4	W.	.....	.....	.....	Fair.
4		27.118	71.5	64	27.005	64	57	62.5	W.	6	.18	....	Stratus	1-4	Cirrus	2-4	N. W.	.....	.....	.....	Cloudy.
Station 1	8 0	23.770	71	48	23.695	48	47	92	N. W.	30	4.50	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Cloudy.
2		24.410	61	50	24.307	50	48	85.6	W.	30	4.50	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	Cloudy.
3		25.890	68.5	57	25.809	57	53.5	78.0	W.	4	.08	....	Stratus	1-4	Cumulus	1-4	W.	.....	.....	.....	Fair.
4		27.092	67.5	57	26.988	57	54	81.2	N. W.	1	.01	....	Stratus	3-4	0	0	.....	.....	.....	.....	Cloudy.
Station 1	9 0	27.784	74	47	27.693	47	46	92	N. W.	30	6.48	....	Stratus	4 4	Hidden	....	....	.....	.....	.....	Cloudy.
2		24.415	59	49	24.326	49	48	89.0	N. W.	16	1.28	....	Stratus	3-4	Cirrus	1 4	N. W.	.....	.....	.....	Cloudy.
3		25.850	66	55	25.769	55.5	52	80.5	W.	2	.02	....	Stratus	1 4	0	0	.....	.....	.....	.....	Fair.
4		27.080	69	57	26.981	56	54	78.0	N.	2	.02	....	Stratus	1 4	Cirrus	2 4	.....	.....	.....	.....	Fair.

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Station 1			29.770	58	46	29.670	46	45	92	N. W.	32	5.12	....	Stratus	4-4	Hidden	....	....	....	....	....	....	
2			24.405	50	48.5	24.366	48.5	47	88.8	W.	18	1.63	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
3		10 0	25.848	65	55.5	25.774	55.5	52	77.6	0	0	0	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Threatening.
4			27.065	67	56.5	26.962	56.5	53	78.0	N. W.	4	.08	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
Station 1			23.710	76	42	23.614	42	41	01	N. W.	40	8.00	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
2		11 22	24.410	58	43	24.373	43	43	100	N. W.	24	2.88	....	Nimbus	4-4	Hidden	....	....	....	10.30 p. m.	....	....	Heavy rain.
3			25.890	64	48	25.819	48	48	100	N.	7	.24	....	Nimbus	4-4	Hidden	....	....	....	10.20 p. m.	....	....	Light rain.
4			27.120	67.5	52.5	27.016	53	52	92.3	N. W.	4	.08	....	Nimbus	4-4	Hidden	....	....	....	10.20 p. m.	....	.37	Light rain.
Station 1			23.690	74	40	23.590	40	40	100	N. W.	40	8.00	....	Nimbus	4-4	Hidden	....	....	....	10.25 p. m.	....	.39	Heavy rain.
2		12 0	24.390	56	42	24.348	42	42	100	N. W.	38	7.22	499	Nimbus	4-4	Hidden	....	....	....	....	....	....	Heavy rain.
3		mid.	25.868	63	46	25.799	46	46	100	N.	2	.02	116	Nimbus	4-4	Hidden	....	....	....	....	....	....	Light rain.
4		night.	27.100	65	52	27.002	53	51.5	89.8	N. W.	4	.08	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Rain.

Meteorological record for June 17, 1873.

	a. m.																						
Station 1			23.632	71	40	23.548	40	39	90	N. W.	46	10.56	....	Stratus	4-4	Hidden	....	....	....	12.45 a. m.	....	Cloudy.
2		1 0	24.329	55	42	24.299	41.5	41.5	100	W.	37	6.84	....	Stratus	4-4	Hidden	....	....	....	12.20 a. m.	....	Cloudy.
3			25.840	63	46	25.771	46	46	100	N. W.	6	.18	....	Stratus	4-4	Hidden	....	....	....	12.30 a. m.	....	Cloudy.
4			27.060	65	52	26.962	53	50	79.8	0	0	0	....	Nimbus	4-4	Hidden	....	....	....	1.15 a. m.	....	Rain.
Station 1			23.630	66	40	23.556	40	39	90	N. W.	42	8.82	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
2		2 0	24.347	64	42	24.298	42	42	100	N. W.	36	6.48	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
3			25.835	67	46	25.757	46	46	100	N. W.	8	.32	....	Stratus	4-4	Hidden	....	....	....	....	....	Threatening.
4			27.045	63	52.5	26.952	53	51	86.4	W.	4	.08	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Station 1			23.615	62	40	23.550	40	39	90	N. W.	40	8.00	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
2		3 0	24.349	63	42	24.302	41.5	41.5	100	N. W.	35	5.12	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
3			25.832	66	46	25.756	46	46	100	N. W.	10	.50	....	Stratus	4-4	Hidden	....	....	....	....	....	Threatening.
4			27.050	63	52	26.957	52	50.5	89.6	W.	8	.32	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Station 1			23.625	71	39	23.540	39	38	90	N. W.	42	8.82	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
2		4 0	24.354	59	41.5	24.316	41.5	41.5	100	N. W.	25	3.12	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
3			25.838	64	46	25.767	46	46	100	N. W.	8	.32	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
4			27.050	63	51	26.957	51.5	50	89.5	N. W.	8	.32	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Station 1			23.645	75	40	23.551	40	39	90	N. W.	37	6.84	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
2		5 0	24.366	57	42	24.332	41.5	41.5	100	N.	24	2.88	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
3			25.838	61	46.5	25.774	46.5	46.5	100	N. W.	8	.32	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
4			27.070	62	51	26.979	51.5	50	89.5	N. W.	4	.08	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Station 1			23.670	76	40	23.574	40	39	90	N. W.	26	3.38	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
2		6 0	24.370	58	42.5	24.334	42	42	100	N. W.	26	3.38	....	Nimbus	4-4	Hidden	....	....	....	5.20 a. m.	....	Light rain.
3			25.860	65	47	25.785	47	47	100	N. W.	8	.32	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
4			27.078	61	51.5	26.980	51.5	50	89.5	N. W.	8	.32	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Station 1			23.685	74	39	23.594	39	39	100	N. W.	40	8.00	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
2		7 0	24.398	63	42	24.350	41.5	41.5	100	N. W.	18	1.62	....	Nimbus	4-4	Hidden	....	....	....	....	....	Light rain.
3			25.888	66	46.5	25.812	46.5	46.5	100	N. W.	7	.24	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
4			27.098	59	52.5	27.014	52.5	50.5	86.3	N. W.	8	.32	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Station 1			23.665	68	37	23.587	37	37	100	N. W.	48	11.52	....	Stratus	4-4	Hidden	....	....	....	....	.15	Clearing up.
2		7 57	24.401	63	39	24.353	39.5	39.5	100	N. W.	25	3.12	....	Stratus	4-4	Hidden	....	....	....	7.30 a. m.	.13	Cloudy.
3			25.100	64	44	25.829	44	44	100	N. W.	8	.32	....	Stratus	4-4	Hidden	....	....	....	....	.07	Cloudy.
4			27.120	59	50	27.036	50	48	85.6	N.	6	.18	....	Stratus	4-4	Hidden	....	....	....	....	.10	Cloudy.

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Meteorological record for June 17, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	a. m.																				
Station 1		23.688	66	37	23.614	37	37	100	N. W.	24	14.58	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Clearing up.
2	9 0	24.400	51.5	38	24.378	37.5	37.5	100	N. W.	20	2.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.915	64.5	42	25.843	42	42	100	N. W.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.151	60	51	27.065	52	49	79.4	N. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1		23.679	63	36	23.612	36	35	90	N. W.	50	12.50	....	Cumulus	1-4	Cumulus	1-8	N. W.	.....	.....	.....	Fair.
2	10 0	24.400	51.5	38.5	24.378	37.5	37.5	100	N.	14	.98	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.925	64.5	43.5	25.853	43.5	43	95.8	N. W.	5	.12	....	Stratus	3-4	Cumulus	1-4	N. W.	.....	.....	.....	Cloudy.
4		27.161	62	52	27.070	52.5	49	76.3	N.	4	.08	....	Stratus	3-4	0	0	.....	.....	.....	.....	Cloudy.
Station 1		23.701	63	37	23.633	37	33	62	N. W.	50	12.50	....	Cumulus	1-4	0	0	.....	.....	.....	.....	Fair.
2	11 0	24.430	59	41.5	24.391	41.5	38.5	74.1	N.	26	3.38	....	Stratus	2-4	0	0	.....	.....	.....	.....	Fair.
3		25.919	63	46.5	25.850	46.5	46	96.1	N. W.	5	.12	....	0	0	Cumulus	3-4	N. W.	.....	.....	.....	Fair.
4		27.161	63	53	27.068	54	48	61.3	N. W.	6	.18	....	Stratus	3-4	0	0	.....	.....	.....	.....	Cloudy.
Station 1		23.710	61	37	23.646	37	33	62	N. W.	40	8.00	....	Cumulus	1-4	0	0	.....	.....	.....	.....	Fair.
2	12 0	24.438	59.5	41	24.398	39.5	38.5	90.7	N.	16	1.28	....	Stratus	2-4	0	0	.....	.....	.....	.....	Fair.
3	m.	25.930	63	47	25.861	47	44	77.2	W.	7	.24	....	0	0	Cumulus	3-4	N. W.	.....	.....	.....	Fair.
4		27.177	63	54.5	27.084	55	48.5	59.0	N. W.	4	.08	136	Stratus	2-4	0	0	.....	.....	.....	.....	Cloudy.
	p. m.																				
Station 1		23.729	66	38	23.655	38	36	81	N. W.	40	8.00	....	Cumulus	1-4	Cumulus	1-4	N. W.	.....	.....	.....	Fair.
2	1 0	24.438	59	42.5	24.399	42	40	82.9	N. W.	13	.84	....	0	0	Cumulus	2-4	N. W.	.....	.....	.....	Fair.
3		25.932	62.5	49.5	25.864	49.5	45	67.6	N. W.	6	.18	....	0	0	Cumulus	2-4	N. W.	.....	.....	.....	Fair.
4		27.176	62	56.5	27.085	57	49	52.1	N. W.	6	.18	....	Stratus	2-4	0	0	.....	.....	.....	.....	Fair.
Station 1		23.751	74	39	23.660	39	36	72	N. W.	36	6.48	....	0	0	Cumulus	1-4	N. W.	.....	.....	.....	Fair.
2	2 0	24.433	58	44.5	24.396	44	40	67.7	N. W.	22	2.42	....	0	0	Cumulus	1-4	N. W.	.....	.....	.....	Fair.
3		25.932	67	51	25.854	51	46	65.3	N. W.	5	.12	....	0	0	Cumulus	1-4	N. W.	.....	.....	.....	Fair.
4		27.178	64	57	27.082	57	50	57.7	N. W.	8	.32	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.
Station 1		23.761	80	37	23.655	37	35	70	N. W.	50	12.50	....	0	0	Cumulus	1-8	N. W.	.....	.....	.....	Fair.
2	3 0	24.440	60	46	24.399	45.5	40	57.5	W.	31	4.80	....	0	0	Cumulus	1-4	N. W.	.....	.....	.....	Fair.
3		25.932	63.5	51	25.862	51	46	65.3	N. W.	10	.50	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	Clear.
4		27.171	64	58	27.075	58	49	47.5	W.	8	.32	....	Stratus	1-8	0	0	.....	.....	.....	.....	Clear.
Station 1		23.755	76	38	23.650	38	35	71	N. W.	48	11.52	....	0	0	Cumulus	1-8	N. W.	.....	.....	.....	Fair.
2	4 0	24.435	57	45.5	24.401	45	40	60.7	N. W.	26	3.38	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	Fair.
3		25.935	64.5	51	25.863	51	44	54.5	N. W.	5	.12	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	Fair.
4		27.170	65.5	57	27.071	57	49	52.1	N. E.	8	.32	....	Stratus	1-8	0	0	.....	.....	.....	.....	Clear.
Station 1		23.745	72	37	23.658	37	34	71	N. W.	54	14.58	....	0	0	Cumulus	1-8	N. W.	.....	.....	.....	Fair.
2		24.412	70	45.5	24.391	45	40	60	N. W.	26	3.38	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	Fair.
3	4 57	25.918	68	54	25.850	54	45	47.4	N. W.	5	.12	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	Clear.
4		27.155	60	56	27.071	56	47	64.1	W.	10	.50	....	0	0	0	0	.....	.....	.....	.....	Clear.

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Meteorological record for June 18, 1873.

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Meteorological record for June 16, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	a. m.																				
Station 1		23.745	67	29	23.668	29	26	67	N. W.	24	2.88	....	0	0	Cirrus	3-4	N. W.	.....	.....	.....	Fair.
2	5 0	24.460	56.5	31.5	24.427	30.5	27.5	68.0	N. W.	25	3.12	....	Stratus ...	1-4	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
3		25.950	58.5	38	25.891	38	33.5	57.7	N. E.	5	.12	....	0	0	Cirrus	3-4	N. W.	.....	.....	.....	Fair.
4		27.190	54	36.5	27.118	37	35	80.7	N.	4	.08	....	0	0	Cirrus	3-4	.....	.....	.....	.....	Fair.
Station 1		23.760	67	29	23.683	29	26	67	N. W.	36	6.48	....	0	0	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
2	6 0	24.468	55	33.5	24.438	32.5	28.5	59.7	N.	18	1.62	....	Stratus ...	1-4	Cirrus	2-4	W.	.....	.....	.....	Fair.
3		25.960	58.5	38	25.901	38	34	62.8	N. E.	10	.50	...	0	0	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
4		27.205	53	39	27.136	39	37	81.6	N.	4	.08	....	0	0	Cirrus	2-4	.....	.....	.....	.....	Fair.
Station 1		23.770	66	32	23.695	32	29	69	N. W.	20	2.00	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
2	7 0	24.460	54	35	24.432	34	30	61.7	N.	13	.84	....	Stratus ...	1-4	Cirrus	1-4	E.	.....	.....	.....	Fair.
3		25.968	56	39.5	25.915	39.5	34	51.2	N. E.	4	.08	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Clear.
4		27.198	51	44	27.134	44.5	39.5	59.7	0	0	0	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Clear.
Station 1		23.761	59	34	23.701	34	30	61	N. W.	32	5.12	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
2	7 57	24.518	65.5	38	24.465	37.5	36.5	90.4	N.	12	.72	....	Stratus ...	1-4	Cirrus	1-4	N.	.....	.....	.....	Fair.
3		25.975	56	42	25.912	42	36.5	53.4	0	0	0	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Clear.
4		27.205	52	47	27.138	47.5	40	45.4	S. W.	2	.02	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Clear.
Station 1		23.768	54	39	23.718	35	30	52	N. W.	42	8.82	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
2	9 0	24.475	55	39	24.445	38	32	45.0	N.	13	.84	....	Stratus ...	1-4	Cirrus	1-4	N.	.....	.....	.....	Fair.
3		25.970	58	45	25.913	45	38	45.9	N.	6	.18	....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.211	56	51	27.137	51.5	42	39.6	N. W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1		23.783	63	38	23.715	38	32	46	N. W.	40	8.00	....	0	0	Cirrus	1-4	.....	.....	.....	.....	Fair.
2	10 0	24.468	52	42.5	24.444	41	34	40.7	N.	13	.84	....	Stratus ...	1-4	Cirrus	1-4	N.	.....	.....	.....	Fair.
3		25.970	58	48	25.913	48	40	42.6	N.	5	.12	....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.207	56	53	27.131	54	44	37.6	N. W.	6	.18	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1		23.820	71	40	23.735	40	31	40	N. W.	36	6.48	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
2	11 0	24.480	62	46.5	24.435	45.5	37.5	38.8	W.	6	.18	....	Stratus ...	1-4	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
3		25.960	63	53	25.891	53	45	48.3	N.	6	.18	....	0	0	Cirrus	1-4	.....	.....	.....	.....	Clear.
4		27.190	57	56	27.120	57	46	35.8	W.	8	.32	...	Hazy	...	0	0	.....	.....	.....	.....	Clear.
Station 1		23.830	69	43	23.748	43	37	51	N. W.	30	4.50	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
2	12 m.	24.485	64	48.5	24.435	48	40	42.6	W.	5	.12	....	Stratus ...	1-4	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
3		25.960	63	53	25.891	53	45	48.3	W.	6	.18	...	0	0	Cirrus	2-4	W.	.....	.....	.....	Fair.
4		27.187	58	59	27.106	59	48	38.1	W.	8	.32	116	0	0	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
	p. m.																				
Station 1		23.782	68	43	23.748	43	37	51	N. W.	22	2.42	..	0	0	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
2	1 0	24.475	60	50	24.421	49	40	47.3	W.	19	1.20	..	Stratus ...	1-4	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
3		25.975	64	56	25.891	56	45	46.7	W.	4	.08	..	0	0	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
4		27.211	61	61	27.131	61	49	53.3	W.	6	.18	..	0	0	Cirrus	2-4	N. W.	.....	.....	.....	Fair.

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Station 1			23. 800	68	44	23. 721	44	38	151	N. W.	12	.72	....	0	0	Cirrus	2-4	N.W.							
2			24. 458	63	52	24. 410	51. 5	42. 5	40. 5	W.	19	1. 80	....	Hazy	....	Cirrus	3-4	N.W.							
3			25. 140	60	50	25. 064	50	48	38. 1	W.	6	.18	....	Hazy	....	Cirrus	3-4	W.							
4			27. 165	64	62	27. 009	62	51	41. 2	N. W.	6	.18	....	0	0	Cirrus	3-4	N.W.							
Station 1			23. 779	67	43	23. 702	43	37	51	N. W.	28	3. 92	....	0	0	Cirrus	2-4	N.W.							
2			24. 458	62	51. 5	24. 412	50. 5	42	42. 4	W.	19	1. 80	....	Hazy	....	Cirrus	3-4	N.W.							
3			25. 920	62. 5	60	25. 860	60	48. 5	36. 1	W.	7	.24	....	Stratus	1-4	Cirrus	2-4	W.							
4			27. 158	65	63	27. 060	63	51	37. 5	W.	4	.08	....	0	0	Cirrus	3-4	N.W.							
Station 1			23. 780	67	43	23. 703	43	37	51	N. W.	28	3. 92	....	0	0	Cirrus	2-4	N.W.							
2			24. 458	66	54	24. 404	53	44	42. 3	W.	18	1. 62	....	Stratus	2-4	Cirrus	2-4	N.W.							
3			25. 910	63. 5	60	25. 840	60	49. 5	41. 2	S. W.	6	.18	....	Stratus	1-4	Cirrus	1-4	W.							
4			27. 140	67	63	27. 037	63	51	37. 5	W.	4	.08	....	0	0	Cirrus	3-4	N.W.							
Station 1			23. 758	70	44	23. 675	44	38	51	N. W.	30	4. 50	....	0	0	Cirrus	3-4	N.W.							
2			24. 429	60	52	24. 388	51. 5	42. 5	40. 5	W.	22	2. 42	....	Stratus	2-4	Cirrus	2-4	N.W.							
3			25. 891	63	58. 5	25. 822	58. 5	48	40. 1	S. W.	4	.08	....	Stratus	2-4	Cirrus	1-4	W.							
4			27. 118	66. 5	64	27. 017	64	53	43. 2	W.	1	.01	....	0	0	Cirrus	3-4	N.W.							
Station 1			23. 740	64	45	23. 670	45	39	53	N. W.	36	6. 48	....	Hazy	....	Stratus	4-4	N.W.							
2			24. 410	59	50	24. 371	50	42	45. 0	W.	16	1. 28	....	Stratus	4-4	Hidden									
3			25. 892	67	57. 5	25. 814	57. 5	49. 5	51. 2	S.	4	.08	....	Stratus	2-4	Cirrus	1-4	W.							
4			27. 100	65. 5	61	27. 001	61	53	37. 5	0	0	0	....	0	0	Cirrus	3-4	N.W.							
Station 1			23. 720	59	44	23. 606	44	39	60	N. W.	30	4. 50	....	Hazy	....	Stratus	4-4	N.W.							
2			24. 409	59	48	24. 370	48	42	56. 3	W.	30	4. 50	....	Stratus	4-4	Hidden									
3			25. 892	65	55. 5	25. 818	55. 5	47. 5	50. 2	S. W.	8	.32	....	Stratus	3-4	Cirrus	1-4	W.							
4			27. 100	64. 5	59. 5	27. 003	60	51. 5	51. 9	S. W.	3	.04	....	0	0	Cirrus	3-4	N.W.							
Station 1			23. 750	65	44	23. 678	44	39	60	N. W.	34	5. 78	....	Hazy	....	Stratus	4-4	N.W.							
2			24. 399	53	48	24. 373	48	42	56. 3	W.	30	4. 50	....	Stratus	4-4	Hidden									
3			25. 883	63	54. 5	25. 814	54. 5	47. 5	55. 2	S.	5	.12	....	Stratus	4-4	Hidden									
4			27. 092	63. 5	57	26. 998	57. 5	49. 5	52. 5	S.	2	.02	....	0	0	Cirrus	3-4	N.W.							
Station 1			23. 762	74	44	23. 671	44	40	67	N. W.	40	8. 00	....	Hazy	....	Stratus	4-4	N.W.							
2			24. 399	52	48	24. 375	48	42	56. 3	W.	31	4. 80	....	Stratus	4-4	Hidden									
3			25. 883	63	54. 5	25. 814	54. 5	48	58. 7	S.	2	.02	....	Stratus	4-4	Hidden									
4			27. 078	61	55	26. 990	56	49	56. 9	S. E.	3	.04	....	0	0	Cirrus	3-4								
Station 1			23. 741	74	44	23. 650	44	39	60	N. W.	42	8. 82	....	Hazy	....	Stratus	4-4	N.W.							
2			24. 371	56	48	24. 339	48	41. 5	52. 8	W.	37	6. 84	....	Nimbus	4-4	Hidden				9.55 p.m.					
3			25. 870	62	54. 5	25. 803	54. 5	47. 5	55. 2	W.	5	.12	....	Stratus	4-4	Hidden									
4			27. 065	61	54. 5	26. 977	55	48. 5	59. 0	S. W.	4	.08	....	0	0	Cirrus	3-4	W.							
Station 1			23. 689	69	44	23. 608	44	39	60	N. W.	48	11. 52	....	Hazy	....	Stratus	2-4	N.W.							
2			24. 368	62	48	24. 323	48	42	56. 3	W.	35	6. 12	....	Nimbus	4-4	Hidden								.02	
3			25. 858	65	55. 5	25. 784	55. 5	47. 5	50. 2	W.	6	.18	....	Stratus	4-4	Hidden									
4			27. 045	60	53. 5	26. 959	54. 5	48. 5	61. 6	S.	4	.08	....	0	0	Cirrus	3-4	W.							
Station 1			23. 682	69	44	23. 601	44	39	60	N. W.	50	12. 50	....	Hazy	....	Stratus	2-4	N.W.							
2			24. 358	59	48	24. 319	48	43	63. 1	W.	32	5. 12	500	Nimbus	2-4	0	0								
3			25. 842	64	56	25. 771	56	48. 5	53. 6	W.	5	.12	122	Stratus	4-4	Hidden				11.30 p.m.					
4			27. 038	60	56	26. 952	57	50	57. 7	S. W.	4	.08	....	Stratus	1-4	Cirrus	2-4	W.							

			2	0	midnight.																				
			3	0																					
			4	0																					
			7	0																					
			8	0																					
			9	0																					
			10	0																					
			11	22																					
			12	0	midnight.																				

Meteorological record for June 19, 1873.

	a. m.																								
Station 1			23. 700	68	43	23. 621	43	40	75	N. W.	56	15. 68	....	Nimbus	4-4	Hidden				12.40 a. m				Light rain.	
2	1	0	24. 360	58. 5	47	24. 322	47	43. 5	73. 5	N. W.	25	3. 12	....	Nimbus	4-4	Hidden				1.00 a. m	12. 30a.m.			Light rain.	
3			25. 850	66	54. 5	25. 774	54. 5	48. 5	61. 3	S. W.	5	.12	....	Nimbus	4-4	Hidden								Light rain.	
4			27. 030	60	59	26. 944	60	51	49. 3	S. W.	4	.08	....	Stratus	4-4	Hidden								Cloudy.	

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Meteorological record for June 19, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	a. m.																				
Station 1		23.678	68	43	23.599	43	41	83	N. W.	48	11.52	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
2	2 0	24.370	70.5	46	24.306	46	43.5	80.5	W.	36	6.48	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
3		25.840	66	53.5	25.764	53.5	48	64.0	N. W.	2	.02	....	Stratus	4-4	Hidden	....	.....	.....	1.45 a. m.	.....	Cloudy.
4		27.005	60	55	26.919	55.5	52	77.6	N.	2	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1		23.692	68	43	23.613	43	41	83	N. W.	40	8.00	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Heavy rain.
2	3 0	24.358	63.5	46	24.309	46	44	84.3	W.	31	4.80	....	Stratus	4-4	Hidden	....	.....	.....	2.10 a. m.	.....	Threatening.
3		25.840	68	52.5	25.759	52.5	48	69.6	N. W.	5	.12	....	Nimbus	4-4	Hidden	....	.....	2.30 a. m.	.....	.....	Light rain.
4		27.000	60	54.5	26.914	55	51	74.3	N. W.	4	.08	....	Nimbus	4-4	Hidden	....	.....	2.50 a. m.	.....	.....	Light rain.
Station 1		23.662	68	42	23.583	42	41	91	N. W.	42	8.82	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
2	4 0	24.330	60	44.5	24.289	44.5	44	95.9	W.	32	5.12	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Threatening.
3		25.830	67	50.5	25.752	50.5	49	89.3	N. W.	6	.18	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
4		27.010	60	54	26.924	55	52.5	83.7	N.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	Light rain.
Station 1		23.650	67	42	23.573	42	41	91	N. W.	48	11.52	...	Stratus	4-4	Hidden	....	.....	.....	4.15 a. m.	.....	Cloudy.
2	5 0	24.367	69	45.5	24.306	45.5	44	68.1	W.	29	4.20	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.838	68	52	25.757	52	49	79.4	N. W.	5	.12	....	Stratus	4-4	Hidden	....	.....	.....	4.15 a. m.	.....	Cloudy.
4		27.015	59	53	26.931	54	51.5	82.4	N. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	4.15 a. m.	.....	Cloudy.
Station 1		23.630	64	43	23.560	43	41	83	N. W.	46	10.58	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	6 0	24.354	65.5	47	24.301	47	45	84.7	W.	38	7.22	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.848	68	53.5	25.767	53.5	48.5	66.7	N. W.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.018	59	56	26.934	56	54	74.7	N. E.	4	.08	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	.....	Cloudy.
Station 1		23.630	61	44	23.567	44	43	92	N. W.	40	8.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	7 0	24.367	63.5	47	24.318	47	46.5	96.1	W.	36	6.48	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.860	70	55	25.775	55	51	74.3	N. W.	2	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.043	60	58	26.957	58.5	55	78.8	N. W.	2	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1		23.655	61	45	23.591	45	44	92	N. W.	24	2.88	....	Stratus	4-4	Hidden	....	.....	.....	.....	.17	Cloudy.
2	7 57	24.390	65.5	48	24.337	48	47	92.5	W.	40	8.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.01	Cloudy.
3		25.862	68.5	56	25.780	56	52.5	77.6	N. W.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.02	Cloudy.
4		27.058	61	62	26.970	63	57	67.0	N. W.	2	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	.01	Cloudy—hazy.
Station 1		23.713	70	45	23.630	45	45	100	N. W.	20	2.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	9 0	24.393	66	49	24.339	48.5	47.5	92.5	N. W.	30	4.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.860	67	57	25.782	57	53.5	75.2	N. W.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.060	63	64	26.967	64	58	67.5	N. W.	2	.02	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	Cloudy—hazy.
Station 1		23.750	67	46	23.673	46	45	92	N. W.	15	1.12	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	10 0	24.405	63	50	24.357	50	48.5	89.1	N. W.	23	2.64	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.858	65	58	25.784	58	54.5	78.4	N. W.	6	.18	....	Stratus	3-4	Cumulus	1-4	N. W.	.....	.....	.....	Cloudy.
4		27.060	65	67	26.962	67	59.5	61.8	N. W.	6	.18	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	Cloudy—hazy.
Station 1		24.770	70	50	24.680	49	49	100	N. W.	20	2.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	11 0	24.415	68	54	24.367	54	51	83.4	W.	24	4.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.871	63	58	25.800	58	54	78.4	N. W.	4	.24	....	Stratus	3-4	Cumulus	1-4	N. W.	.....	.....	.....	Cloudy.
4		27.050	63	71	26.960	71	61	73.2	N. W.	2	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy—hazy.

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Meteorological record for June 19, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
Station 1...	12 midnight.	23.655	69	53	23.574	53	53	100	W.	48	11.52	....	Hazy	....	Cumulus..	3-4	W.	.....	.....	.....	Cloudy.
2...		24.299	62	57	24.254	57	54	81.2	W.	49	12.00	760	Stratus ...	3-4	0	0	.....	.....	.....	.....	Fair.
3...		25.775	64.5	64	25.702	64	59	72.7	W.	13	.84	143	Stratus ...	3-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
4...		26.928	70.5	67	26.871	68	61	64.7	E.	3	.04	....	Stratus ...	2-4	0	0	.....	.....	.....	.....	Fair.

Meteorological record for June 20, 1873.

Station 1...	1 a. m.	23.600	68	53	23.521	53	52	93	W.	50	12.50	....	Hazy	....	Cumulus..	2-4	W.	.....	.....	.....	Cloudy.
2...		24.257	63	56.5	24.209	56	54	87.2	W.	56	15.68	....	Stratus ...	2-4	Cirrus	2-4	N. W.	.....	.....	.....	Cloudy.
3...		25.750	69.5	63.5	25.667	63.5	58.5	72.3	W.	13	.84	....	Stratus ...	2-4	0	0	.....	.....	.....	.....	Fair.
4...		27.020	70.5	69	26.909	69.5	62	63.2	W.	6	.18	....	Stratus ...	1-4	Cirrus	1-4	.....	.....	.....	.....	Fair.
Station 1...	2 a. m.	23.590	66	53	23.516	53	53	100	N. W.	60	18.00	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
2...		24.219	62	56	24.174	56	54.4	90.3	W.	50	12.50	...	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
3...		25.725	70.5	63.5	25.640	63.5	59	75.1	W.	13	.84	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
4...		26.900	71	68.5	26.788	69	61	60.7	W.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
Station 1...	3 a. m.	23.600	65	52	23.528	52	52	100	N. W.	36	6.48	....	Nimbus...	4-4	Hidden ...	....	.....	2.50 a. m	.....	.....	Heavy rain.
2...		24.268	62	55	24.223	55	55	100	W.	32	5.12	....	Nimbus...	4-4	Hidden ...	....	.....	2.50 a. m	.....	.....	Light rain.
3...		25.720	70.5	59.5	25.634	59.5	59.5	100	N. W.	13	.84	....	Nimbus ...	4-4	Hidden ...	....	.....	2.54 a. m	.....	.....	Light rain.
4...		26.900	71	66	26.788	67	63	79.0	W.	10	.50	....	Nimbus...	4-4	Hidden ...	....	.....	2.50 a. m	.....	.....	Rain.
Station 1...	4 a. m.	23.535	63	53	23.468	53	53	100	N. W.	36	6.48	....	Stratus ...	3-4	Hidden ...	....	.....	.....	3.45 a. m	.....	Clearing up.
2...		24.248	60.5	54.5	24.206	54	54.5	100	W.	46	10.58	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
3...		25.745	68	50	25.665	50	50	100	N. W.	12	.72	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
4...		26.940	70	56	26.830	57	55	87.4	N. E.	4	.08	....	Stratus ...	4-4	Hidden ...	....	.....	.....	3.30 a. m	.....	Cloudy.
Station 1...	5 a. m.	23.540	63	53	23.473	53	52	93	N. W.	38	7.22	....	Hazy	....	Cumulus..	3-4	N. W.	.....	3.54 a. m	.....	Fair.
2...		24.255	60.5	46	24.217	46	44	84.3	W.	42	8.82	....	Stratus ...	2-4	Cirrus	2-4	N. W.	.....	4.02 a. m	.....	Cloudy.
3...		25.738	69	50.5	25.656	50.5	49.5	92.7	N. W.	5	.12	....	Stratus ...	2-4	Cumulus..	1-4	N. W.	.....	.....	.....	Cloudy.
4...		26.931	67	55	26.828	56	54.5	90.3	N. E.	4	.08	....	0	0	Cumulus..	3-4	N. W.	.....	.....	.....	Fair.
Station 1...	6 a. m.	23.560	68	50	23.482	50	49	93	N. W.	30	4.50	....	Hazy	....	Cumulus..	1-4	N. W.	.....	.....	.....	Fair.
2...		24.250	65.5	48	24.197	47.5	45	81.1	W.	41	8.40	...	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
3...		25.725	60.5	51	25.649	51	48.5	82.2	N. W.	5	.12	....	0	0	0	0	.....	.....	.....	.....	Clear.
4...		26.910	64	53.5	26.834	54	52	86.7	E.	4	.08	....	0	0	Cumulus	1-4	.....	.....	.....	.....	Clear.
Station 1...	7 a. m.	23.570	74	45	23.490	45	43	84	N. W.	24	2.88	...	Hazy	....	Cumulus.	1-4	N. W.	.....	.....	.....	Fair.
2...		24.220	57	47	24.185	47.5	45.5	84.8	W.	41	8.40	..	0	0	0	0	.....	.....	.....	.....	Clear.
3...		25.730	69	52	25.647	52	50	[illegible]	N. W.	9	.02	..	0	0	0	0	.....	.....	.....	.....	Clear.
4...		26.900	65	58	26.810	58	55.5	84	0	0	0	..	0	0	Cumulus	1-8	.....	.....	.....	.....	Clear.

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Meteorological record for June 20, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Comm'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	p. m.																				
Station 1		23.595	55	42	23.544	42	41	91	N. W.	38	7.22	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	8 0	24.310	56	43	24.278	43	41	83.3	N. W.	28	3.92	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.805	66.5	50.5	25.728	50.5	46.5	71.6	N. W.	10	.50	....	Stratus	1-4	Cumulus	1-4	N. W.	.....	.....	.....	Fair.
4		27.012	64	56	26.916	57	50	57.7	W.	12	.72	....	0	0	Cumulus	2-4	N. W.	.....	.....	.....	Fair.
Station 1		23.590	55	40	23.539	40	39	91	N. W.	40	8.0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	9 0	24.334	57	42	24.290	42	40	82.9	N. W.	20	2.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.830	64	49	25.758	49	45	71.0	N.	7	.24	....	Stratus	2-4	0	0	.....	.....	.....	.....	Fair.
4		27.038	64.5	55	26.941	56	49	56.9	W.	6	.18	....	0	0	Cumulus	1-4	N. W.	.....	.....	.....	Fair.
Station 1		23.540	54	38	23.491	38	37	90	N. W.	53	14.04	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	10 0	24.340	63	39	24.292	39	38	90.7	N. W.	29	4.20	....	Stratus	2-4	0	0	.....	.....	.....	.....	Fair.
3		25.822	63.5	46.5	25.751	46.5	43	73.2	N. W.	10	.50	....	Stratus	2-4	0	0	.....	.....	.....	.....	Clear.
4		27.035	64	53	26.939	53.5	47	57.9	W.	4	.08	....	Stratus	1-8	0	0	.....	.....	.....	.....	Clear.
Station 1		23.562	52	36	23.518	36	35	90	N. W.	62	19.22	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	11 22	24.320	51	36	24.299	36	36	100	N. W	17	1.44	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.821	62	43.5	25.754	43.5	39	63.2	N. W.	11	.60	....	Stratus	1-4	0	0	.....	.....	.....	.....	Clear.
4		27.055	62	49	26.964	50	45	64.6	N. W.	6	.18	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.
Station 1		23.550	50	34	23.469	34	33	90	N. W.	60	18.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	12 0	24.314	51	34	24.293	34	34	100	N. W.	20	2.00	934	Stratus	3-4	0	0	.....	.....	.....	.....	Fair.
3	mid-	25.820	60	42	25.758	42	39	74.4	N. W.	10	.50	252	Stratus	2-4	0	0	.....	.....	.....	.....	Fair.
4	night.	27.060	61	48	26.972	48.5	43.5	63.4	S. W.	6	.18	....	Stratus	2-4	0	0	.....	.....	.....	.....	Fair.

Meteorological record for June 21, 1873.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Comm'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	a. m.																				
Station 1		23.577	70	33	23.499	33	32	89	N. W.	66	21.78	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2	1 0	24.310	53.5	31	24.283	32.5	32	94.5	N.	30	4.50	....	Stratus	1-4	0	0	.....	.....	.....	.....	Clear.
3		25.820	60	40.5	25.758	40.5	37.5	71.5	N.	10	.50	....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.085	60	45.5	26.979	46	42	69.1	0	0	0	....	0	0	Cirrus	1-8	.....	.....	.....	.....	Clear.
Station 1		23.550	70	32	23.468	32	31	89	N. W.	62	19.22	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.
2	2 0	24.345	60	33.5	24.296	33.5	32.5	89.4	N. W.	20	3.38	....	Stratus	2-4	0	0	.....	.....	.....	.....	Fair.
3		25.810	63.5	40	25.760	40	37	73.2	N. W	10	.50	....	Stratus	1-4	0	0	.....	.....	.....	.....	Clear.
4		27.04	58	45	26.96	45	41	84.3	0	0	0	....	0	0	Cirrus	1-4	N.	.....	.....	.....	Fair.

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Meteorological record for June 21, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM.	HYGROM.	Corrected barometer.	Relative humidity.	WIND.			LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Remarks
			Attached.	Wet bulb.			Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction (moving from—)	Commen'd.	Ended.		
	p. m.																	
Station 1	2	29.652	74	32	29.562	100	N. W.	20	2.00	....	Stratus	4-4	Hidden		....	....	2 25 p. m.	Cloudy.
2	24.340	53	35.5	35	24.314	100	N. W.	30	4.50	....	Stratus	4-4	Hidden		....	....	2 20 p. m.	Cloudy.
3	3 0	25.830	38	41	25.781	91.2	N. W.	10	.50	....	Stratus	4-4	Hidden		....	....	2 10 p. m.	Cloudy.
4	27.000	36	50	40	26.961	48.5	N.	6	.12	....	Stratus	4-4	Hidden		....	....	2 20 p. m.	Cloudy.
Station 1	2	23.690	69	34	23.610	90	N.	10	.50	....	Stratus	4-4	Hidden		....	....	....	Cloudy.
2	24.370	32	35	33	24.346	89.8	N. W.	20	2.00	....	Stratus	4-4	Hidden		....	....	....	Cloudy.
3	25.854	39	41	40	25.794	91.2	N. W.	10	.50	....	Stratus	3-4	Cumulus	1-4	N. W.	....	....	Cloudy.
4	27.110	39	51	40	27.026	79.0	N. W.	6	.18	....	Stratus	4-4	Hidden		....	....	....	Cloudy.
Station 1	2	23.700	71	34	23.616	90	N.	16	1.28	....	Stratus	4-4	Hidden		....	....	.06	Cloudy.
2	24.370	56	34.5	34	24.332	100	N. W.	19	1.80	....	Stratus	4-4	Hidden		....	....	.06	Cloudy.
3	25.876	61	49	40	25.812	82.9	N. W.	7	.24	....	Stratus	4-4	Hidden		....	....	.10	Cloudy.
4	4 57	27.120	57	49.5	27.041	50	W.	6	.18	....	Stratus	3-4	0	0	....	....	.15	Cloudy.
Station 1	2	23.700	74	34	23.609	94	N.	12	.72	....	Stratus	4-4	Hidden		....	....	....	Cloudy.
2	24.345	53	34.5	34	24.335	100	N. W.	20	2.00	....	Stratus	4-4	Hidden		....	....	....	Cloudy.
3	6 0	25.887	36	39	25.826	82.4	N. W.	7	.24	....	Stratus	4-4	Hidden		....	....	....	Cloudy.
4	27.135	37	48.5	45	27.055	71.0	N. W.	4	.08	....	Stratus	4-4	Hidden		....	....	....	Cloudy.
Station 1	2	23.715	69	32	23.634	89	N.	14	.98	....	Stratus	4-4	Hidden		....	....	....	Cloudy.
2	24.405	56	34.5	34	24.373	100	N. W.	24	2.88	....	Stratus	3-4	0	0	....	....	....	Fair.
3	7 0	25.901	60	44.5	25.839	64.1	N.	7	.24	....	0	0	Cumulus	2-4	N. W.	....	....	Fair.
4	27.146	56	48	44	27.070	46	N.	6	.08	....	Stratus	2-4	0	0	....	....	....	Fair.
Station 1	2	23.730	66	32	23.641	89	N.	6	.18	....	Stratus	4-4	Hidden		....	....	....	Cloudy.
2	24.405	52	34	31	24.341	53.5	N.	20	4.20	....	Stratus	4-4	Hidden		....	....	....	Cloudy.
3	8 0	25.915	36	40	25.854	100	N. W.	6	.18	....	Stratus	4-4	Hidden		....	....	....	Cloudy.
4	27.159	50	47	43.5	27.083	47	N. W.	3	.04	....	Stratus	3-4	0	0	....	....	....	Cloudy.
Station 1	2	23.725	67	32	23.645	89	N.	20	2.00	....	Stratus	4-4	Hidden		....	....	....	Cloudy.
2	24.450	67	33.5	33	24.390	83.5	N.	20	2.00	....	Stratus	4-4	Hidden		....	....	....	Cloudy.
3	9 0	25.838	60	40	25.776	82.0	N. W.	6	.18	....	Stratus	3-4	Hidden		....	....	....	Cloudy.
4	27.185	60	44	42.5	27.099	45	N. W.	2	.02	....	Stratus	3-4	0	0	....	....	....	Cloudy.
Station 1	2	23.734	65	32	23.651	89	N.	18	1.62	....	Stratus	4-4	Hidden		....	....	....	Cloudy.
2	24.434	67	33.5	31	24.402	53	N. W.	16	1.28	....	Stratus	4-4	Hidden		....	....	....	Cloudy.
3	10 0	25.920	34	40	25.862	60.4	N.	5	.12	....	Stratus	1-4	0	0	....	....	....	Clear.
4	27.196	58	44.5	42.5	27.103	76.4	N.	1	.01	....	Stratus	1-4	0	0	....	....	....	Fair.
Station 1	2	23.734	58	32	23.654	89	N. W.	14	.98	....	Stratus	4-4	Hidden		....	....	....	Cloudy.
2	24.453	61	33.5	31	24.412	53.5	N.	13	.84	....	Stratus	3-4	0	0	....	....	....	Fair.
3	11 93	25.915	44	39.5	25.855	76.4	N.	4	.08	....	Stratus	0	0	0	....	....	....	Clear.
4	27.196	52	40	37.5	27.113	64.4	N. W.	9	.06	....	Stratus	1-4	0	0	....	....	....	Fair.

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Station 1	12 mid. night.	0	23. 760	56	39	23. 706	39	31	89	N. W.	10	1. 28	....	Stratus ...	4-4	Hidden ..	..	.....	.....	.....	.....	Cloudy.
2			24. 450	61	39. 5	24. 407	39	31. 5	94. 7	N.	11	.60	640	Stratus ...	2-4	0	0	.....	.....	.....	.....	Cloudy.
3			25. 938	54	39	25. 890	39	37	84. 6	N.	6	.15	185	0	0	0	0	.....	.....	.....	.....	Fair.
4			27. 198	55	39	27. 124	40	38	82. 0	N. W.	2	.02	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Clear.

Meteorological record for June 22, 1873.

47 W

			a. m.																			
Station 1			23. 760	53	32	23. 716	32	31	89	N. W.	12	.72	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
2	1	0	24. 470	63	32. 5	24. 422	32	32	100	N.	16	1. 28	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
3			25. 950	54. 5	38	25. 901	38	36. 5	85. 8	N. W.	2	.02	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
4			27. 198	54	40	27. 126	40	38	82	N. W.	4	.08	....	Stratus ...	2-4	Cumulus..	2-4	.....	.....	.....	.....	Cloudy.
Station 1			23. 780	59	32	23. 720	32	31	89	N. W.	12	.72	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
2	2	0	24. 467	61	32	24. 424	32	29. 5	74. 4	N.	7	.24	....	0	0	0	0	.....	.....	.....	.....	Clear.
3			25. 970	61	37	25. 906	37	35	80. 7	N. W.	2	.02	....	0	0	0	0	.....	.....	.....	.....	Clear.
4			27. 192	54	38	27. 120	38. 5	37. 5	90. 6	N.	2	.02	....	0	0	Cirrus	1-8	.....	.....	.....	.....	Clear.
Station 1			23. 790	64	32	23. 719	32	31	89	N. W.	8	.32	....	Stratus ...	1-8	0	0	.....	.....	.....	.....	Fair.
2	3	0	24. 485	68	31. 5	24. 427	31. 5	29. 5	79. 1	N.	11	.60	....	0	0	0	0	.....	.....	.....	.....	Clear.
3			25. 970	59	36	25. 910	36	34	80. 2	0	0	0	....	0	0	0	0	.....	.....	.....	.....	Clear.
4			27. 200	53	36. 5	27. 131	37	35. 5	85. 4	N.	2	.02	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1			23. 805	64	32	23. 734	32	31	89	N.	5	.12	....	Stratus ...	1-8	0	0	.....	.....	.....	.....	Fair.
2	4	0	24. 470	62	31. 5	24. 425	31. 5	30	84. 3	N. E.	11	.60	....	Stratus ...	2-4	0	0	.....	.....	.....	.....	Fair.
3			25. 988	59. 5	35	25. 927	35	34	89. 8	N. W.	2	.02	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
4			27. 215	51	36	27. 151	37	35. 5	85. 4	N.	2	.02	....	0	0	Cumulus..	1-4	N.	.....	.....	.....	Fair.
Station 1			23. 810	65	33	23. 737	33	32	89	N.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Fair.
2	5	0	24. 510	67	32	24. 454	32	30. 5	84. 5	N.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
3			25. 990	56. 5	36. 5	25. 936	36. 5	35. 5	90. 1	0	0	0	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
4			27. 230	50	36. 5	27. 169	37. 5	36	85. 6	N.	4	.08	....	Stratus ...	1-4	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
Station 1			23. 835	67	34	23. 757	34	33	90	N.	7	.74	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
2	6	0	24. 530	65	33	24. 478	32. 5	32	94. 5	N. W.	12	.72	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
3			26. 020	59	37. 5	25. 960	37. 5	36. 5	90. 4	0	0	0	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
4			27. 248	50	39	27. 186	39. 5	38	86. 3	N.	2	.02	....	Stratus ...	1-4	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
Station 1			23. 860	69	34	23. 778	34	33	90	N.	5	.12	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
2	7	0	24. 520	61	34	24. 486	33. 5	33. 5	100	W.	13	.84	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
3			26. 040	59	39. 5	25. 980	39. 5	38. 5	90. 8	0	0	0	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
4			27. 270	52	43	27. 202	43. 5	41. 5	83. 4	0	0	0	....	Stratus ...	1-4	Cumulus..	1-4	.....	.....	.....	.....	Fair.
Station 1			23. 865	69	34	23. 783	34	33	90	N.	5	.12	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
2	7	57	24. 540	59	35	24. 501	34. 5	34	94. 8	W.	14	.98	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
3			26. 050	59. 5	40	25. 989	40	39	91. 0	W.	2	.02	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
4			27. 288	52	46	27. 220	46	43. 5	80. 5	0	0	0	....	Stratus ...	3-4	0	0	.....	.....	.....	.....	Cloudy.
Station 1			23. 875	65	35	23. 805	35	34	90	N. W.	10	.50	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
2	9	0	24. 540	52	36	24. 516	35	34. 5	94. 8	N. W.	17	1. 44	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
3			26. 060	59. 5	41	26. 009	41	40	91. 2	N. W.	5	.12	....	Stratus ...	2-4	Cumulus..	1-4	N. W.	.....	.....	.....	Cloudy.
4			27. 301	55	49	27. 226	49	45	71. 0	W.	4	.08	....	Stratus ...	3-4	Cumulus..	1-4	N. W.	.....	.....	.....	Cloudy.
Station 1			23. 885	66	35	23. 810	35	34	90	N. W.	12	.72	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
2	10	0	24. 569	62	36. 5	24. 524	36	35	90. 0	N. W.	14	.98	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	Cloudy.
3			26. 063	60	43	26. 001	43	40. 5	79. 1	N. W.	2	.02	....	Stratus ...	2-4	Cumulus..	1-4	N. W.	.....	.....	.....	Cloudy.
4			27. 309	55	51	27. 234	51	45	59. 0	W.	6	.18	....	Stratus ...	3-4	0	0	.....	.....	.....	.....	Cloudy.

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Meteorological record for June 22, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
Station 1	a. m.	23.890	65	53	53	53	100	W.	10	50	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
2	11 0	24.569	59	57	53	53	94.9	N. W.	12	.72	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
3		26.070	61.5	43.5	43.5	42	72.6	N. W.	5	.12	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
4		27.318	57	53	53	47	63.3	S. E.	4	.06	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Station 1		23.890	62	35	34	34	90	W.	8	.32	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
2	12 m.	24.584	68	39	37.5	37	95.2	N. W.	10	.50	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
3		26.085	64.5	45	49	49	76.2	N. W.	4	.09	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
4		27.318	57	53	53	47	60.6	W.	2	.02	.91	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
	p. m.																			
Station 1		23.900	64	34	33	33	90	N. W.	8	.32	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
2	1 0	24.551	58	39	37	37	90.5	W.	22	2.42	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
3		26.018	46	46	43	42	72.9	N. W.	5	.12	....	Stratus	3-4	Cumulus	1-4	N. W.	....	....	....	Cloudy.
4		27.369	58	56	50	50	62.7	W.	4	.06	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Station 1		23.915	65	33	34	33	90	N. W.	10	50	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
2	2 0	24.610	65	48	39	38	82.4	W.	17	1.44	....	Stratus	3-4	Cumulus	1-4	W.	....	....	....	Cloudy.
3		26.060	63	48	43	43	66.6	N. W.	5	.12	....	Stratus	3-4	Cumulus	1-4	N. W.	....	....	....	Cloudy.
4		27.329	60	56	52	50	62.7	N. W.	4	.04	....	Stratus	3-4	Cumulus	0	0	....	....	....	Cloudy.
Station 1		23.835	66	35	34	34	90	N. W.	6	.18	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
2	3 0	24.576	68	42	39	39	82.4	N. W.	10	50	....	Stratus	3-4	Cumulus	1-4	N. W.	....	....	....	Cloudy.
3		26.033	51	45	38	38	67.0	N. W.	5	.12	....	Stratus	2-4	Cumulus	2-4	N. W.	....	....	....	Cloudy.
4		27.280	57	50	50	50	57.7	E.	4	.08	....	Stratus	3-4	Cumulus	0	0	....	....	....	Cloudy.
Station 1		23.861	66	34	37	37	90	N. W.	7	.50	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
2	4 0	24.590	69	39	37	37	81.6	N. W.	6	.24	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
3		26.033	46	46	43	43	60.1	N. W.	4	.18	....	Stratus	2-4	Cumulus	2-4	N. W.	....	....	....	Cloudy.
4		27.278	56	50	50	50	62.7	N. W.	4	.08	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Station 1		23.871	66	35	37	37	90	N. W.	14	.98	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
2	4 57	24.587	69	47	43	43	81.6	N. W.	12	.72	....	Stratus	3-4	Hidden	....	....	....	....	....	Cloudy.
3		26.050	46	49	46	46	60.1	N.	4	.04	....	Stratus	3-4	Cumulus	1-4	N. W.	....	....	....	Cloudy.
4		27.287	56	50	50	50	62.7	N.	4	.04	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Station 1		23.892	66	35	35	35	90	N.	12	.72	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
2		24.594	66	36	36	36	85.8	N.	6	.32	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
3	6 0	26.000	38	38	36	36	76.9	N. W.	3	.04	....	Stratus	3-4	Cumulus	1-4	N. W.	....	....	....	Cloudy.
4		27.301	58	48	47	47	66.0	N. W.	3	.04	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Station 1		23.900	64	36	37	36	90	N. W.	10	.50	....	Stratus	4-4	Hidden	....	....	....	....	....	Fair
2		24.619	77	53	53	53	85.6	W.	7	.24	....	Stratus	3-4	Cumulus	0	0	0.	....	....	Cloudy.
3	7 0	26.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Stratus	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4		27.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Stratus	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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Station 1	8	0	24.000	60	34	23.927	34	32	79	0	0	0		Stratus	1-4	0	0												Fair.
2			24.670	64	37	24.620	37	35	80.7	E.	4	.08		Stratus	3-4	0	0												
3			26.15	61	43.5	26.001	43.5	41	79.4	N. W.	1	.01		Stratus	3-4	Hidden												Fair.
4			27.412	61	40	27.329	40	45	77.7	N. W.	1	.01		Stratus	3-4	0	0												Cloudy.
Station 1	9	0	24.006	61	34	23.930	34	32	79	N. E.	16	1.28		Stratus	1-4	0	0												Cloudy.
2			24.668	60	36	24.597	36	33.5	75.3	E.	12	.72		Stratus	1-4	0	0												Fair.
3			26.169	59	42	26.109	42	38.5	70.2	0	0	0			0	0	0												Fair.
4			27.425	60.5	43.5	27.336	44	41	75.6	N. E.	3	.04			0	0	0												Clear.
Station 1	10	0	24.028	65	34	23.955	34	32	79	N. E.	8	.32		Stratus	1-16	0	0												Clear.
2			24.697	67	36	24.641	36	34	80.2	E.	11	.60		Stratus	1-4	0	0												Clear, (auror .)
3			26.166	54.5	42.5	26.117	42.5	39	70.6	0	0	0			0	0	0												Fair.
4			27.430	59.5	41.5	27.344	42.5	40	78.9	N. E.	4	.08			0	0	0												Clear.
Station 1	11	22	24.045	69	34	23.963	34	32	79	N. E.	6	.18			0	0	0												Clear.
2			24.700	63	35.5	24.654	35.5	33	75.0	E.	8	.32			0	0	0												Clear, (aurora.)
3			26.174	58	42	26.151	42	39	74.4	N. W.	2	.02			0	0	0												Clear.
4			27.441	58	40	27.358	41	39	82.4	N.	4	.08			0	0	0												Clear.
Station 1	12 mid-night.	0	24.048	70	34	23.964	34	32	79	0	0	0			0	0	0												Clear.
2			24.700	62	35	24.656	35	33	79.7	S. E.	8	.32	270		0	0	0												Clear, (aurora.)
3			26.180	55	41.5	26.129	41.5	38.5	74.1	0	0	0	71		0	0	0												Clear.
4			27.432	57	40	27.352	41	39	82.4	N. E.	4	.08			0	0	0												Clear.

Meteorological record for June 23, 1873.

	a. m.																												
Station 1	1	0	24.058	70	34	23.974	34	32	79	0	0	0			0	0	0	0											Clear.
2			24.700	63	34.5	24.652	34.5	33	84.5	S. E.	4	.08			0	0	0	0											Clear.
3			26.170	54.5	42	26.111	42	38.3	70.2	N. W.	1	.01			0	0	0	0											Clear.
4			27.423	55	40	27.348	40.5	37.5	73.2	N.	4	.08			0	0	Cirrus	1-8											Clear.
Station 1	2	0	24.040	66	35	23.965	35	33	80	0	0	0			0	0	0	0											Clear.
2			24.710	66	34.5	24.656	34.5	33	84.5	S. E.	10	.50			0	0	0	0											Clear.
3			26.181	55.5	41.5	26.129	41.5	38.5	74.1	N.	2	.02			0	0	0	0											Clear.
4			27.425	54	40	27.352	40	38.5	83.4	N.	4	.08			0	0	Cirrus	1-8											Clear.
Station 1	3	0	24.050	67	35	23.972	35	33	80	0	0	0			0	0	0	0											Clear.
2			24.715	67	35.5	24.659	35.5	34	84.9	S. E.	1	.01		Stratus	1-4	0	Cirrus	1-4											Fair.
3			26.190	55	42	26.139	42	38.5	70.2	0	0	0			0	0	0	0											Clear.
4			27.410	52	40	27.342	40	38.5	83.4	N.	4	.08			0	0	0	0											Clear.
Station 1	4	0	24.050	68	36	23.970	36	36	61	0	0	0		Stratus	1-8	0	0												Fair.
2			24.720	71	34.5	24.655	34.5	32.5	79.5	S. E.	1	.01			0	0	0	0											Clear.
3			26.190	55	42	26.139	42	38.5	70.2	S. E.	4	.08			0	0	0	0											Clear.
4			27.455	52	39.5	27.367	40	38.5	83.4	N. E.	6	.18			0	0	0	0											Clear.
Station 1	5	0	24.065	68	36	23.985	36	33	70	0	0	0		Stratus	1-8	0	0												Fair.
2			24.717	65	34.5	24.665	34.5	33.5	89.6	S. E.	5	.12		Stratus	1-4	0	0												Fair.
3			26.200	55.5	41.5	26.148	41.5	39	78.4	S. E.	4	.08			0	0	0	0											Clear.
4			27.448	52	39.5	27.380	40	38.5	83.4	N. E.	4	.08			0	0	0	0											Clear.
Station 1	6	0	24.075	67	37	23.997	37	35	80	0	0	0		Stratus	1-8	0	0												Fair.
2			24.730	59	42.5	24.691	41.5	38.5	74.1	S. E.	1	.01		Stratus	1-4	0	0												Fair.
3			26.222	55	42	26.171	42	39	74.4	S. E.	2	.02			0	0	0	0											Clear.
4			27.460	53	41.5	27.390	42	40	82.9	N. E.	4	.08			0	0	0	0											Clear.

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Meteorological record for June 23, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	a. m.																				
Station 1	7 0	24.087	67	39	24.009	39	37	81	0	0	0	....	0	0	0	0	.....	.....	.....	.....	Clear.
2		24.739	60	43.5	24.698	43.5	40.5	75.3	0	0	0	....	Stratus....	1-4	0	0	.....	.....	.....	.....	Fair.
3		26.228	56	43.5	26.175	43.5	40	71.3	S. E.		2	.02	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.478	53	47.5	27.408	48	45	77.7	N. E.		2	.02	Stratus....	1-8	0	0	.....	.....	.....	.....	Clear.
Station 1	7 57	24.100	64	41	24.029	41	38	73	E.		2	.02	0	0	Cumulus ..	1-4	.....	.....	.....	.....	Fair.
2		24.740	61	45	24.697	45	42	76.2	E.		1	.01	Stratus....	1-4	Cumulus ..	1-4	N. E.	.....	.....	.....	Fair.
3		26.235	56	47	26.182	47	43	69.6	S. E.		1	.01	0	0	Cumulus ..	1-4	.....	.....	.....	.....	Clear.
4		27.480	54	52	27.408	52	45.5	62.6	N. E.		2	.02	0	0	Cumulus ..	1-4	.....	.....	.....	.....	Clear.
Station 1	9 0	24.110	65	42	24.037	42	39	75	0	0	0	....	Hazy.....	....	Cumulus ..	2-4	.....	.....	.....	.....	Fair.
2		24.797	67	48	24.741	46	42.5	72.9	N.		4	.08	0	0	Cumulus ..	2-4	N. E.	.....	.....	.....	Fair.
3		26.250	59.5	50	26.189	50	45	64.6	S. E.		2	.02	0	0	Cumulus ..	1-4	.....	.....	.....	.....	Clear
4		27.498	56	55	27.420	56	48	51.2	N.		2	.02	0	0	Cumulus ..	1-4	S. E.	.....	.....	.....	Fair.
Station 1	10 0	24.142	66	43	24.067	43	40	75	0	0	0	....	Hazy.....	....	Cumulus ..	2-4	.....	.....	.....	.....	Fair.
2		24.790	61	51.5	24.747	49	44	63.8	W.		2	.02	0	0	Cumulus ..	2-4	N. E.	.....	.....	.....	Fair.
3		26.265	58	55	26.206	55	49	62.0	S. E.		6	.18	0	0	Cumulus ..	2-4	S. E.	.....	.....	.....	Fair.
4		27.505	57	58	27.425	58	50	52.9	N. W.		4	.08	0	0	Cumulus ..	2-4	S. E.	.....	.....	.....	Fair.
Station 1	11 0	24.145	65	44	24.072	44	41	75	0		0	....	Hazy.....	....	Cumulus ..	3-4	.....	.....	.....	.....	Fair.
2		24.780	61	50	24.737	48.5	44	67.0	0		0	....	0	0	Cumulus ..	2-4	E.	.....	.....	.....	Fair.
3		26.260	60	55	26.197	55	49	62.0	W.		5	.12	0	0	Cumulus ..	2-4	S. E.	.....	.....	.....	Fair.
4		27.499	60	60	27.412	60	52	48.1	W.		6	.18	0	0	Cumulus ..	2-4	S. E.	.....	.....	.....	Fair.
Station 1	12 m.	24.120	61	46	24.055	46	43	76	0		0	....	Hazy.....	....	Cumulus ..	3-4	.....	.....	.....	.....	Fair.
2		24.809	69	52	24.748	51	46	65.3	S. E.		4	.08	Stratus....	1-4	Cumulus ..	2-4	E	.....	.....	.....	Fair.
3		26.260	64	56	26.188	56	50	62.7	W.		1	.01	0	0	Cumulus ..	2-4	.....	.....	.....	.....	Fair.
4		27.492	61	63	27.402	63	53	47.0	N. W.		2	.02	85	Stratus....	1-4	Cumulus ..	2-4	S. E.	.....	.....	.....	Cloudy.
	p. m.																				
Station 1	1 0	24.192	60	47	24.059	47	45	85	0		0	....	Hazy	....	Cumulus..	3-4	.....	.....	.....	.....	Fair.
2		24.800	69	52	24.739	50	46	71.6	S. W.		5	.12	Stratus ...	1-4	Cumulus..	2-4	E.	.....	.....	.....	Fair.
3		26.265	66	57	26.188	57	51	63.4	0		0	....	0	0	Cumulus..	3-4	.....	.....	.....	.....	Cloudy.
4		27.490	64	67	27.393	66	55	45.0	S. W.		4	.08	Stratus ...	1-4	Cumulus..	2-4	.....	.....	.....	.....	Cloudy.
Station 1	2 0	24.190	60	45	24.057	45	42	76	W.		2	.02	Hazy	....	Cumulus..	4-4	.....	.....	.....	.....	Cloudy.
2		24.797	67	55	24.743	54	47	55.2	S. W.		7	.24	Stratus ...	1-4	Cumulus..	2-4	S. W.	.....	.....	.....	Fair.
3		26.265	67	68	26.186	68	53	51.1	S. W.		6	.18	0	0	Cumulus..	3-4	.....	.....	.....	.....	Cloudy.
4		27.497	65	67	27.397	67	56	45.9	W.		4	.08	0	0	Cumulus..	3-4	N. W.	.....	.....	.....	Cloudy.
Station 1	3 0	24.130	63	46	23.001	46	43	76	0		0	....	Hazy	....	Cumulus..	3-4	.....	.....	.....	.....	Fair.
2		24.799	69	56	24.738	56	48	51.9	N. W.		6	.18	Stratus ...	1-4	Cumulus..	2-4	W.	.....	.....	.....	Fair.
3		26.258	65	70	26.184	69	52	34.6	W		4	.08	0	0	Cumulus..	4-4	.....	.....	.....	.....	Cloudy.
4		27.490	68	68	27.[illegible]	57	54.5	[illegible]	W		4	.04	Stratus ...	3-4	Cumulus..	1-4	N. W.	.....	.....	.....	Cloudy.

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Station 1				24.135	67	47	24.057	47	43	69	0	0	0	....	Hazy	....	Cumulus	3-4	.....	.....	.....	.....	.....	
2				24.109	65	52	24.747	53	46	59.8	N. W.	8	.32	....	Stratus	1-4	Cumulus	2-4	.....	.....	.....	.....	.....	Fair.
3	4	0		26.253	65	60	26.178	60	52	54.6	W.	4	.08	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	Fair.
4				27.493	68	56	27.386	56	56	49.5	N. W.	4	.08	....	Stratus	1-4	Cumulus	2-4	N. W.	.....	.....	.....	.....	Cloudy.
Station 1				24.130	68	46	24.050	46	43	76	S. W.	1	.01	....	0	0	Cumulus	3-4	S. W.	.....	.....	.....	.....	Cloudy.
2				24.78	63	54.5	24.738	54.5	48	58.7	N. W.	8	.32	....	Stratus	1-4	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
3	4	57		26.253	64	60	26.183	60	52	54.6	W.	4	.08	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	Fair.
4				27.491	68.5	64.5	27.383	64.5	55	50.7	N. W.	2	.02	....	Stratus	1-4	Cumulus	2-4	N. W.	.....	.....	.....	.....	Cloudy.
Station 1				24.128	67	44	24.050	44	41	75	S. W.	12	.72	....	0	0	Cumulus	3-4	S. W.	.....	.....	.....	.....	Cloudy.
2				24.775	62	49	24.733	49	45	71.0	S. W.	8	.32	....	Stratus	1-4	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
3	6	0		26.250	67	55	26.171	55	50	68.1	S. W.	2	.02	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
4				27.488	66	60.5	27.386	60.5	53	57.6	S.	2	.02	....	Stratus	2-4	Cumulus	1-4	N. W.	.....	.....	.....	.....	Cloudy.
Station 1				24.120	65	45	24.047	45	42	76	S. W.	2	.02	....	0	0	Cumulus	3-4	S. W.	.....	.....	.....	.....	Fair.
2				24.791	67	48	24.735	48	44.5	74.0	S. W.	8	.32	....	Stratus	4-4	Hidden	.....	.....	.....	.....	.....	.....	Cloudy.
3	7	0		26.247	67.5	54	26.168	54	49	67.4	0	0	0	....	Stratus	3-4	Cirrus	1-4	N. W.	.....	.....	.....	.....	Cloudy.
4				27.489	64	58	27.392	58	53	69.8	S.	1	.01	....	Stratus	2-4	Cirrus	1-4	N. W.	.....	.....	.....	.....	Cloudy.
Station 1				24.120	67	44	24.042	44	41	75	0	0	0	....	Hazy	....	Cumulus	3-4	S. W.	.....	.....	.....	.....	Fair.
2				24.785	68	46	24.727	46	43	76.7	S. W.	6	.18	....	Stratus	2-4	Cirrus	1-4	N.	.....	.....	.....	.....	Fair.
3	8	0		26.255	67	53	26.166	53	48.5	69.9	S.	3	.04	....	Stratus	1-4	Cumulus	2-4	N. W.	.....	.....	.....	.....	Cloudy.
4				27.490	63.5	55	27.384	56	51	68.7	S.	1	.01	....	Stratus	1-4	Cumulus	2-4	N. W.	.....	.....	.....	.....	Cloudy.
Station 1				24.124	69	46	24.042	45	42	76	S. W.	4	.08	....	Stratus	1-8	0	0	.....	.....	.....	.....	.....	Clear.
2				24.782	65	45	24.730	45	42	76.2	S. W.	4	.08	....	Stratus	1-4	Cirrus	1-4	.....	.....	.....	.....	.....	Fair.
3	9	0		26.258	67.5	51	26.179	51	47	72.2	S. E.	1	.01	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
4				27.480	63.5	52.5	27.384	53.5	43.5	36.3	S.	4	.08	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
Station 1				24.139	69	45	24.053	44	42	84	0	0	0	....	Stratus	1-4	0	0	.....	.....	.....	.....	.....	Fair.
2				24.789	64	43	24.739	43	41	91.4	S. W.	4	.08	....	Stratus	1-4	0	0	.....	.....	.....	.....	.....	Fair.
3	10	0		26.260	64	49	26.188	49	46	78.1	S. E.	1	.01	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
4				27.429	63.5	50	27.396	51	47.5	75.6	S.	4	.08	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
Station 1				24.132	71	44	24.057	44	42	84	0	0	0	....	Stratus	1-4	0	0	.....	.....	.....	.....	.....	Fair.
2				24.785	65	43	24.733	43	40	75.0	S.	2	.02	....	Stratus	1-4	0	0	.....	.....	.....	.....	.....	Fair.
3	11	22		26.260	66	49	26.183	49	46	78.1	0	0	0	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
4				27.490	60	48	27.403	49	46	78.1	S. W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
Station 1				24.130	67	44	24.052	44	42	84	0	0	0	....	Stratus	1-4	0	0	.....	.....	.....	.....	.....	Fair.
2	12	0		24.785	65	42.5	24.733	42.5	40	78.9	S.	1	.01	100	0	0	0	0	.....	.....	.....	.....	.....	Clear.
3	mid-			26.265	68	48	26.183	48	45	77.7	N. W.	1	.01	48	0	0	0	0	.....	.....	.....	.....	.....	Clear.
4	night.			27.488	59	48	27.403	49	46	78.1	W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.

Meteorological record for June 24, 1873.

	a. m.																												
Station 1				24.120	68	44	24.040	44	40	67	0	0	0	....	Stratus	1-4	0	0	.....	.....	.....	.....	.....	Fair.
2	1	0		24.775	65	42	24.722	42	40.5	87.1	0	0	0	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
3				26.250	67	49	26.171	49	45	71.0	0	0	0	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
4				27.450	59	48	27.365	48	46	85.0	S.	4	.06	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
Station 1				24.115	70	43	24.031	43	39	66	0	0	0	....	Stratus	1-4	0	0	.....	.....	.....	.....	.....	Fair.
2	2	0		24.758	67	41.5	24.702	41.5	39	78.4	S. E.	6	.18	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
3				26.230	65	48	26.156	48	45	77.7	0	0	0	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
4				27.440	60	46	27.353	46.5	45.5	92.2	S. E.	4	.06	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.

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Meteorological record for June 24, 1873—Continued..

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
Station 1...	a. m.	24.108	71	42	24.022	42	37	57	c	0	0	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
2...	3 0	24.757	68	40.5	24.699	40.5	37.5	73.5	S.	7	.24	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
3...		26.220	62.5	47	26.152	47	45	84.7	0	0	0	....	0	0	0	0	.....	.....	.....	.....	Clear.
4...		27.440	60	46.5	27.353	47	45	84.7	S.	4	.08	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1...		24.100	72	41	24.012	41	36	56	N.E	2	.02	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
2...	4 0	24.745	67	40.5	24.689	40.5	36.5	64.9	S.	5	.12	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
3...		26.230	64.5	47	26.158	47	45	84.7	S.E.	1	.01	....	0	0	0	0	.....	.....	.....	.....	Clear.
4...		27.448	60	46	27.361	46.5	44.5	83.5	S.E.	4	.08	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Clear.
Station 1...		24.100	69	42	24.018	42	37	57	N.E.	4	.08	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
2...	5 0	24.771	64	44	24.721	44	40.5	71.6	S.	6	.18	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
3...		26.240	62	47	26.183	47	46	92.3	0	0	0	....	0	0	0	0	.....	.....	.....	.....	Clear.
4...		27.460	59	47	27.375	47.5	45	81.1	S.E.	4	.08	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Clear.
Station 1...		24.110	70	43	24.026	43	39	66	N.E.	5	.12	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
2...	6 0	24.756	64	48.5	24.706	48	44	70.4	E.	4	.08	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
3...		26.242	62.5	47	26.174	47	46	92.3	0	0	0	....	Smoky	.....	Cirrus	1-4	.....	.....	.....	.....	Clear.
4...		27.460	58	47.5	27.377	48	46	85.0	S.E.	4	.08	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Clear.
Station 1...		24.130	72	44	23.942	44	40	67	E.	4	.08	....	Hazy	.....	Cirro.-strat	1-8	E.	.....	.....	.....	Fair.
2...	7 0	24.760	65	48.5	24.706	48.5	45	74.3	N.	2	.02	....	Stratus ...	1-4	Cirrus	1-4	N.W.	.....	.....	.....	Fair.
3...		26.258	65.5	50	26.183	50	48	85.6	S.E.	1	.01	....	Smoky	.....	Cirrus	1-4	E.	.....	.....	.....	Clear.
4...		27.478	57	53	27.398	54	51	80.2	S.E.	2	.02	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Clear.
Station 1...		24.130	70	45	24.048	45	41	67	E.	5	.12	....	Hazy	.....	Cirro.-strat	1-4	.....	.....	.....	.....	Fair.
2...	7 37	24.778	63	49.5	24.729	49.5	48.5	92.6	N.	7	.24	....	0	0	Cumulus..	1-4	E.	.....	.....	.....	Fair.
3...		26.262	67	57	26.183	57	52	69.2	0	0	0	....	Smoky	.....	Cumulus..	2-4	S.E.	.....	.....	.....	Fair.
4...		27.478	59	58	27.393	58.5	53	67.2	N.W.	2	.02	....	0	0	Cumulus..	1-4	.....	.....	.....	.....	Fair.
Station 1...		24.120	65	48	24.047	48	43	69	S.E.	5	.12	....	Hazy	.....	Cumulus..	1-4	N.W.	.....	.....	.....	Fair.
2...	9 0	24.780	66	51	24.734	51	46	65.3	S.W.	2	.02	....	0	0	Cumulus..	2-4	E.	.....	.....	.....	Fair.
3...		26.260	67	57	26.181	57	52	69.2	0	0	0	....	Smoky	.....	Cumulus..	2-4	S.E.	.....	.....	.....	Fair.
4...		27.475	61	63	27.385	63	56	61.9	N.W.	2	.02	....	0	0	Cumulus..	2-4	S.E.	.....	.....	.....	Fair.
Station 1...		24.130	63	48	24.061	48	43	69	S.E.	5	.12	....	Hazy	.....	Cumulus..	2-4	.....	.....	.....	.....	Fair.
2...	10 0	24.799	68	52	24.739	52	46	59.8	N.E.	5	.12	....	0	0	Cumulus..	3-4	W.	.....	.....	.....	Fair.
3...		26.260	65	58	26.187	58	53	69.8	W.	2	.02	....	Smoky	.....	Cumulus..	2-4	S.E.	.....	.....	.....	Fair.
4...		27.485	63	64	27.390	64	55	52.7	S.W.	2	.02	....	Stratus ...	1-4	Cumulus..	2-4	S.E.	.....	.....	.....	Cloudy.
Station 1...		24.143	64	49	24.072	49	44	64	E.	2	.02	....	Hazy	.....	Cumulus..	2-4	.....	.....	.....	.....	Fair.
2...	11 0	24.799	65	55	24.745	55	48	56.1	N.E.	3	.32	....	0	0	Cumulus..	3-4	W.	.....	.....	.....	Fair.
3...		26.265	65.5	58	26.190	58	52	64.1	W.	2	.02	....	Smoky	.....	Cumulus..	3-4	S.E.	.....	.....	.....	Cloudy.
4...		27.480	65	65	27.389	65	55	48.7	N.W.	4	.08	....	Stratus ...	1-4	Cumulus..	2-4	.....	.....	.....	.....	Cloudy.
Station 1...		24.150	66	49	24.077	49	44	64	E.	2	.02	....	Hazy	.....	Cumulus..	2-4	W.	.....	.....	.....	Fair.
2...		24.800	66	53.5	24.740	53	45	48.3	E.	2	.12	....	Stratus ..	1-4	Cumulus..	2-4	W.	.....	.....	.....	Fair.
3...		26.270	64	60	26.190	60	50	54.6	N.E.	2	.02	....	Smoky ..	.....	Cumulus..	3-4	N.E.	.....	.....	.....	Cloudy.
4...	12 m	27.490	60	68	27.390	68	58	54.6	W.	4	.08	.70	Stratus ..	1-4	Cumulus..	2-4	N.	.....	.....	.....	Cloudy.

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Meteorological record for June 25, 1873.

Place of observation.	Time of observation.	Barometer.	THERM.		HYGROM.		Corrected barometer.	Relative humidity.	WIND.				LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Remarks.
			Attached.	Exposed.	Dry bulb.	Wet bulb.			Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction (moving from —)	Commenced.	Ended.		
	p. m.																				
Station 1	1	24.213	56	44	39	39	24.159	59	N. E.	7	.24	.....	0	0	0	0	.....	.....	.....	.....	Clear.
2		24.268	39	47	47	41	24.892	55.4	S. W.	12	.72	.....	0	0	0	0	.....	.....	.....	.....	Clear.
3		26.365	67	53	53	46.5	26.296	57.4	S.	0	0	.....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.450	60	51	51	46	27.400	68.9	S.	4	.08	.....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1		24.213	57	44	44	39	24.157	59	N. E.	5	.12	.....	0	0	0	0	.....	.....	.....	.....	Clear.
2		24.275	65	48	48	41.5	24.821	52.8	S. E.	5	.12	.....	0	0	0	0	.....	.....	.....	.....	Clear.
3		26.308	68	53	53	46	26.296	54.4	S. E.	1	.01	.....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.570	62	50	50	45	27.478	68.3	S. E.	4	.06	.....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1		24.220	56	44	44	39	24.166	59	N. E.	4	.06	.....	0	0	0	0	.....	.....	.....	.....	Clear.
2		24.283	67	47	47	42.5	24.835	47.5	S.	0	0	.....	0	0	0	0	.....	.....	.....	.....	Clear.
3		26.308	68	52	52	46	26.291	59.8	E.	1	.01	.....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.390	62	50	50	46	27.498	68.3	S.	4	.08	.....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1		24.220	54	44	44	39	24.180	59	N. E.	5	.12	.....	0	0	0	0	.....	.....	.....	.....	Clear.
2		24.291	64	45	45	41	24.840	68.4	S.	0	0	Stratus	1-4	0	0	0	.....	.....	.....	.....	Clear.
3		26.340	68	52	52	46.5	26.298	62.9	E.	4	.08	.....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.505	61	49	49	46.5	27.505	68.3	S. E.	4	.08	.....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1		24.225	53	44	44	39	24.187	59	N. E.	2	.02	.....	0	0	0	0	.....	.....	.....	.....	Clear.
2		24.880	55	46.5	46.5	43	24.849	72.2	S.	12	.72	Stratus	1-4	0	0	0	.....	.....	.....	.....	Clear.
3		26.410	71	53	53	47	26.320	60.6	S.	0	0	.....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.600	60	47	47	42	27.513	72.3	S. E.	4	.08	.....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1		24.900	55	47	47	42	24.908	61	N. E.	2	.02	.....	0	0	0	0	.....	.....	.....	.....	Clear.
2		24.900	53	47.5	47	42	24.873	72.3	E.	6	.18	Stratus	1-4	0	0	0	.....	.....	.....	.....	Clear.
3		26.420	70	53	53	47	26.333	66.3	S.	0	0	.....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.620	58	51	51	47	27.537	72.2	S. E.	4	.02	.....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1		24.280	59	49	49	43	24.219	57	N. E.	6	.32	.....	0	0	0	0	.....	.....	.....	.....	Clear.
2		24.934	63	53	53	46	24.890	58.5	N.	0	0	Stratus	1-4	0	0	0	.....	.....	.....	.....	Fair.
3		26.430	67	53	53	46	26.330	57.0	S.	0	0	.....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.641	56	50	50	44	27.538	69.2	S. E.	4	.08	.....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1		24.300	60	50	50	44	24.230	58	N. E.	4	.08	.....	0	0	0	0	.....	.....	.....	.....	Clear.
2		24.950	61	53.5	53.5	46.5	24.905	60.5	N.	10	.50	.....	0	0	0	0	.....	.....	.....	.....	Fair.
3		26.440	67	59	59	50	26.360	60.0	N.	0	0	.....	0	0	0	0	.....	.....	.....	.....	Clear.
4		27.650	61	62.5	62.5	55	27.568	53.7	N.	0	0	.....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1		24.310	57	50	50	42	24.253	56.8	N. W.	2	.02	.....	0	0	0	0	.....	.....	.....	.....	Clear.
2		24.940	56	44	44	39	24.944	54	N. E.	1	.01	.....	0	0	0	0	.....	.....	.....	.....	Clear.
3		26.445	66	61	61	49	26.397	53.3	N.	6	.32	Stratus	1-4	0	0	0	.....	.....	.....	.....	Clear.
4		27.660	63	67	67	50	27.574	45.9	N. W.	4	.06	.....	0	0	0	0	.....	.....	.....	.....	Clear.

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Meteorological record for June 25, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from —)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks
	p. m.																				
Station 1...	11 0	24.305	63	48	24.234	48	44	71	N. W.	20	2.00	....	Stratus ...	1-8	0	0	.....	.....	.....	.....	Clear, (aurora.)
2...		24.958	57	51	24.922	51	45.5	62.2	W.	8	.32	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
3...		26.440	68	58	26.357	58	51	58.4	0	0	0	....	0	0	0	0	.....	.....	.....	.....	Clear.
4...		27.662	65	55	27.562	56	51	68.7	S.W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1...	12 0 mid-night.	24.300	61	48	24.234	48	44	71	N. W.	12	.72	....	Stratus ...	1-8	0	0	.....	.....	.....	.....	Clear, (aurora.)
2...		24.952	56	50	24.919	50	45	64.6	W.	5	.12	170	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
3...		26.430	66	58	26.352	58	51	58.4	0	0	0	53	0	0	0	0	.....	.....	.....	.....	Clear.
4...		27.660	65	55	27.560	56	51	68.7	S.W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	Clear.

Meteorological record for June 26, 1873.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from —)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks
	a. m.																				
Station 1...	1 0	24.300	59	48	24.238	48	44	71	N. W.	8	.32	....	Stratus ...	1-8	0	0	.....	.....	.....	.....	Clear, (aurora.)
2...		24.945	56	49.5	24.912	49.5	45	67.6	0	0	0	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
3...		26.430	63.5	57	26.356	57	50	57.7	0	0	0	....	0	0	0	0	.....	.....	.....	.....	Clear.
4...		27.640	64	55	27.543	56	51	68.7	S. E.	4	.08	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1...	2 0	24.295	58	48	24.236	48	43	62	N. W.	5	.12	....	Stratus ...	1-8	0	0	.....	.....	.....	.....	Clear, (aurora.)
2...		24.956	63	50	24.909	50	45.5	68.0	S. W.	7	.24	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
3...		26.440	67.5	56	26.359	56	50	62.7	0	0	0	....	0	0	0	0	.....	.....	.....	.....	Clear.
4...		27.640	64	55	27.543	56	51	68.7	S.	4	.08	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1...	3 0	24.295	57	48	24.238	48	43	62	N. W.	6	.18	....	Stratus ...	1-8	0	0	.....	.....	.....	.....	Clear.
2...		24.975	68	49.5	24.915	49.5	45.5	71.3	S. W.	2	.02	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	Fair.
3...		26.450	68	50	26.368	50	49	92.7	0	0	0	....	0	0	0	0	.....	.....	.....	.....	Clear.
4...		27.650	64	53.5	27.553	54	50	73.8	S.	4	.08	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1...	4 0	24.290	56	46	24.235	46	43	76	N. W	5	.12	....	Stratus ...	1-8	Cirro-strat	1-16	.....	.....	.....	.....	Fair.
2...		24.998	70	48.5	24.933	48.5	44.5	70.7	S. W.	2	.02	....	Stratus ...	1-4	Cirrus	1-4	.....	.....	.....	.....	Fair.
3...		26.460	69.5	54	26.374	54	49	67.4	0	0	0	....	0	0	0	0	.....	.....	.....	.....	Clear.
4...		27.650	62	54	27.556	54.5	50	70.9	S. E.	4	.08	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1...	5 0	24.220	55	47	24.237	47	44	77	N.	8	.32	....	Stratus ...	1-8	Cirro-strat	1-16	.....	.....	.....	.....	Fair.
2...		24.960	63	49.5	24.920	49.5	46	74.8	W.	5	.12	....	Stratus ...	2-4	Cirrus	1-4	.....	.....	.....	.....	Fair.
3...		26.470	67.5	55	26.389	55	50	70.8	S. W.	1	.01	....	0	0	Cirrus	3-4	N. E.	.....	.....	.....	Fair.
4...		27.630	59	54	27.505	54.5	50	70.9	N. E.	4	.08	....	0	0	Cirrus ...	3-4	.....	.....	.....	.....	Fair.
Station 1...	6 0	24.285	56	49	24.230	49	44	83	N. W.	10	.50	....	Stratus ...	1-8	Cirro-strat	1-16	.....	.....	.....	.....	Fair.
2...		24.985	60	54	24.923	54.5	48	57.0	W.	6	.18	....	Stratus ...	1-4	Cirrus	1-4	.....	.....	.....	.....	Fair.
3...		26.460	67	55	26.379	55	50	70.8	S. W.	1	.01	....	Smoky ...	..	Cirrus	2-4	N. E.	.....	.....	.....	Fair.
4...		27.630	59	55	27.507	56	51	68.7	N. E.	4	.08	....	0	0	Cirrus ...	2-4	.....	.....	.....	.....	Fair.

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Meteorological record for June 26, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	p. m.																				
Station 1	8 0	24.140	61	52	24.075	52	46	59	N. W.	22	2.42	....	Hazy	....	Cirrus	1-4	N. W.				Fair.
2		24.827	61	55	24.782	54.5	48	58.7	W.	27	3.64	....	Stratus	1-4	Cirrus	1-4	N. E.				Fair.
3		26.322	75	62	26.230	62	54	56.1	N. W.	4	.08	....	Smoky	....	Cirrus	1-4					Clear.
4		27.532	71.5	61.5	27.417	62.5	56.5	66.7	N.	4	.08	....	0	0	Cirrus	1-4					Fair.
Station 1		24.134	60	51	24.071	51	45	59	N. W.	26	3.38	....	Hazy	....	0	0					Clear.
2	9 0	24.815	60	53.5	24.773	53.5	47	57.9	W.	20	2.00	....	Stratus	1-4	Cirrus	1-4	N. E.				Fair.
3		26.315	72.5	61	26.222	61	53	55.3	W.	5	.12	....	0	0	0	0					Clear.
4		27.520	69	58.5	27.410	59	53	64.7	N.	4	.08	..	0	0	0	0					Clear.
Station 1		24.123	58	51	24.065	51	45	59	N. W.	29	4.20	....	Hazy	....	0	0					Clear, (aurora.)
2	10 0	24.810	58	52	24.772	52	45.5	62.2	W.	19	1.80	....	Stratus	1-4	0	0					Fair.
3		26.297	66.5	59.5	26.217	59.5	51	51.5	W.	4	.06	....	0	0	0	0					Clear.
4		27.503	69.5	57	27.392	58	51.5	61.2	N.	4	.08	....	0	0	0	0					Clear.
Station 1		24.112	57	50	24.056	50	45	64	N. W.	30	4.50	....	0	0	0	0					Clear, (aurora.)
2	11 22	24.782	54	51.5	24.753	51.5	45	50.8	W.	19	1.80	....	Hazy	....	0	0					Clear.
3		26.278	66	59	26.201	59	51	53.7	N. W.	4	.08	....	0	0	0	0					Clear.
4		27.495	64	56.5	27.393	57	50.5	60.4	N.	4	.08	....	0	0	0	0					Clear.
Station 1	12 0 mid-night.	24.100	56	49	24.046	49	44	64	N. W.	36	6.48	....	0	0	0	0					Clear, (aurora.)
2		24.780	53	50	24.753	50	44.5	61.5	W.	18	1.62	310	Stratus	1-4	0	0					Clear.
3		26.292	64.5	58	26.208	58	50.5	59.3	N. W.	2	.02	68	0	0	0	0					Clear.
4		27.490	63.5	56	27.394	57	51	63.4	N. E.	4	.06	....	0	0	0	0					Clear.

Meteorological record for June 27, 1873.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	a. m.																				
Station 1	1 0	24.100	56	49	24.046	49	44	64	N. W.	32	5.12	....	Hazy	....	0	0					Clear.
2		24.782	55	49	24.751	49	44	63.8	W.	20	2.00	....	Stratus	1-4	0	0					Fair.
3		26.280	62.5	55	26.192	55	48.5	50.0	0	0	....	....	0	0	0	0					Clear.
4		27.470	63	55	27.375	56	50	62.7	N. E.	4	.06	....	0	0	0	0					Clear.
Station 1		24.100	55	47	24.048	47	43	69	N. W.	20	2.00	....	Hazy	....	0	0					Clear.
2	2 0	24.797	67	49	24.781	49	44	63.2	W.	13	.84	....	Stratus	1-4	0	0					Fair.
3		26.290	61.5	55	26.185	55	48	56.1	0	0	0	....	0	0	0	0					Clear.
4		27.455	62	54	27.363	54.5	49	64.7	E.	4	.06	....	0	0	0	0					Clear.
Station 1		24.094	55	47	24.042	47	43	69	N. W.	14	.98	....	0	0	0	0					Clear.
2	3 0	24.770	61	49	24.731	49	44.5	67.3	N. W.	14	.72	....	Stratus	1-4	0	0					Fair.
3		26.263	60	52	26.182	52	47	66.0	N. W.	4	.02	....	0	0	0	0					Clear.
4		27.444	58	54	27.359	54	48	69.0	N. E.	4	.06	....	0	0	0	0					Clear.

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Meteorological record for June 27, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	p. m.																				
Station 1		23.960	62	57	23.893	57	49	52	N. W.	10	.50	....	Hazy	....	Cirrus	1-4	.....	.....	.....	.....	Clear.
2	4 0	24.621	67	66	24.565	66	55	45.0	W.	23	2.64	....	0	0	Cirrus	1-4	.....	.....	.....	.....	Fair.
3		26.075	74	73	25.98	73	60	42.5	N. W.	6	.18	....	Smoky	....	Cumulus	1-4	.....	.....	.....	.....	Clear.
4		27.285	79	75	27.151	75	61	40.3	N. W.	6	.18	....	0	0	Cumulus	1-8	.....	.....	.....	.....	Clear.
Station 1		23.925	62	55	23.858	55	49	61	N. W.	24	2.88	....	0	0	0	0	.....	.....	.....	.....	Clear.
2	4 57	24.609	69	65	24.548	65	54	44.1	W.	27	3.64	....	0	0	Cirrus	1-4	.....	.....	.....	.....	Fair.
3		26.060	74	72	25.965	72	60	45.7	N. W.	5	.12	....	Smoky	....	Cumulus	1-4	.....	.....	.....	.....	Clear.
4		27.269	80.5	74	27.132	74	60	39.5	W.	8	.32	....	0	0	Cumulus	1-4	N.	.....	.....	.....	Fair.
Station 1		23.905	61	54	23.840	54	49	67	W.	23	4.20	....	Smoke	....	Cumulus	1-4	W.	.....	.....	.....	Fair.
2	6 0	24.591	71	62	24.526	61.5	53	53.2	W.	23	2.64	....	Stratus	1-4	Cirrus	1-4	.....	.....	.....	.....	Fair.
3		26.052	74	70.5	25.957	70.5	60	50.7	W.	5	.12	....	Smoky	....	Cumulus	1-4	.....	.....	.....	.....	Clear.
4		27.260	80	73	27.124	73	61	46.4	W.	4	.08	....	0	0	Cumulus	2-4	N.	.....	.....	.....	Fair.
Station 1		23.885	60	53	23.822	53	49	72	W.	30	4.50	....	Smoke	....	Cumulus	1-4	W.	.....	.....	.....	Fair.
2	7 0	24.579	70	58.5	24.516	58.5	52.5	64.4	W.	23	2.64	....	Stratus	1-4	Cirrus	2-4	W.	.....	.....	.....	Fair.
3		26.040	76	67	25.941	67	58	55.0	W.	2	.02	....	Smoky	....	Cirrus	1-4	.....	.....	.....	.....	Fair.
4		27.232	74	67	27.112	67	60	64.2	W.	2	.02	....	Stratus	1-4	Cirrus	1-4	N.	.....	.....	.....	Fair.
Station 1		23.860	60	53	23.797	53	49	72	W.	30	4.50	....	Smoke	....	Cumulus	2-4	W.	.....	.....	.....	Fair.
2	8 0	24.557	61	55.5	24.514	55.5	51.5	74.6	W.	25	3.12	....	Stratus	1-4	Cirrus	2-4	W.	.....	.....	.....	Fair.
3		26.040	78.5	69	25.935	69	56	66.5	N. W.	2	.02	....	Smoky	....	Cirro-cum.	1-4	N. W.	.....	.....	.....	Fair.
4		27.218	72	65	27.103	65.5	58	60.9	W.	3	.04	....	Stratus	1-4	Cirro-cum.	2-4	N.	.....	.....	.....	Cloudy.
Station 1		23.868	60	52	23.805	52	49	79	W.	36	6.48	....	Hazy	....	Cirro-cum.	1-4	W.	.....	.....	.....	Fair.
2	9 0	24.543	59	55	24.504	55	51	74.3	W.	29	4.20	....	Stratus	1-4	Cirrus	1-4	W.	.....	.....	.....	Fair.
3		26.030	73	62	25.938	62	56	66.5	W.	5	.12	....	Smoky	....	Cirro-cum.	1-4	N. W.	.....	.....	.....	Fair
4		27.215	71.5	62.5	27.101	63	56	61.9	S. W.	4	.08	....	Stratus	1-4	Cirro-cum.	2-4	N.	.....	.....	.....	Cloudy.
Station 1		23.842	60	52	23.779	52	49	79	W.	40	8.00	....	Hazy	....	Cumulus	1-4	W.	.....	.....	.....	Fair.
2	10 0	24.543	60	54.5	24.502	54.5	51	77.2	W.	30	4.50	....	Stratus	2-4	Cirrus	1-4	W.	.....	.....	.....	Fair.
3		26.002	65.5	61	25.927	61	55.5	68.6	W.	4	.08	....	Smoky	....	Cirro-cum.	1-4	N. W.	.....	.....	.....	Fair.
4		27.205	71.5	61.5	27.001	62.5	56	64.1	S. E.	4	.08	....	Stratus	1-8	0	0	.....	.....	.....	.....	Clear.
Station 1		23.835	60	51	23.772	51	49	86	W.	28	3.92	....	Stratus	1-8	0	0	.....	.....	.....	.....	Clear.
2	11 22	24.515	58	51	24.478	54	51.5	83.4	W.	25	3.12	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.
3		25.990	65.5	61	25.915	61	56	71.3	N. W.	2	.02	....	Smoky	....	Cumulus	1-4	N. E.	.....	.....	.....	Fair.
4		27.185	68	61	27.040	62	56	66.5	S. W.	2	.02	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.
Station 1		23.835	60	51	23.772	51	49	86	W.	34	5.78	....	Stratus	2-4	0	0	.....	.....	.....	.....	Clear.
2	12 m.	24.512	57	53.5	24.479	53.5	51.5	86.5	W.	20	2.00	470	Stratus	2-4	0	0	.....	.....	.....	.....	Fair.
3		25.980	65.5	60	25.905	60	58	76.5	N. W.	2	.02	88	Stratus	3-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.160	67.5	61	27.076	61.5	56	68.9	S. W.	4	.08	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.

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	a. m.																							
Station 1	1	0	23.830	59	51	23.770	51	49	86	W.	38	6.48	....	Stratus	4-4	Hidden	....	....	.....	.....	.....	.....	.....	Cloudy.
2			24.400	57	53.5	24.456	53.5	52	89.9	W.	16	1.28	....	Stratus	3-4	0	0	.....	.....	.....	.....	.....	Fair.
3			25.950	65	61	25.876	61	57	76.9	W.	5	.12	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
4			27.140	67	65	27.037	65.5	58	65.3	S. E.	4	.08	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
Station 1	2	0	23.820	59	51	23.760	51	49	86	N. W.	30	4.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
2			24.475	59	53.5	24.436	53.5	52	89.9	W.	23	2.64	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
3			25.945	64	61	25.874	61	57	76.9	W.	2	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
4			27.120	69	63	27.112	63.5	58.5	72.5	S. E.	2	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
Station 1	3	0	23.800	59	51	23.740	51	49	86	N. W.	28	3.92	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
2			24.468	60	53	24.427	53	52.5	96.5	W.	22	2.42	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
3			25.920	64	61	25.849	61	57	76.9	0	0	0	...	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
4			27.105	68	62	27.000	62.5	58.5	77.4	N. E.	2	.02	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
Station 1	4	0	23.800	59	51	23.740	51	49	86	N. W.	30	4.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
2			24.450	58	53.5	24.413	53.5	53.5	100	W.	18	1.62	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
3			25.920	64	60	25.849	60	57	82.2	N. W.	2	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
4			27.088	68	62	26.983	62.5	58.5	77.4	N. E.	2	.02	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
Station 1	5	0	23.790	59	52	23.730	52	51	91	N. W.	24	2.88	....	Stratus	4-4	Hidden	..	.....	.....	.....	.....	.....	.....	Cloudy.
2			24.445	57	53.5	24.411	53.5	53.5	100	W.	17	1.44	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
3			25.915	63	59	25.849	59	57	87.8	N. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Threatening.
4			27.100	67	62.5	26.997	63	59	77.6	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
Station 1	6	0	23.785	59	52	23.725	52	52	100	N. W.	20	2.00	....	Nimbus	4-4	Hidden	....	.....	.....	5.30 a. m.	.....	.....	.....	Light rain.
2			24.440	58	54	24.403	54	53.5	96.9	W.	23	2.64	....	Nimbus	4-4	Hidden	....	.....	.....	5.47 a. m.	.....	.....	.....	Light rain.
3			25.910	63	59	25.841	59	58	93.9	N. W.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	5.45 a. m.	.....	.....	.....	Light rain.
4			27.108	66	63.5	27.008	64	60.5	80.6	0	0	0	....	Nimbus	4-4	Hidden	....	.....	.....	6.05 a. m.	.....	.....	.....	Misting.
Station 1	7	0	23.792	59	52	23.732	52	52	100	N. W.	24	2.88	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Light rain.
2			24.450	62	54	24.405	54	54	100	W.	16	1.62	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Light rain.
3			25.890	63	58	25.821	58	58	100	W.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Light rain.
4			27.109	66	62.5	27.009	63	61	88.6	N. E.	1	.01	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Light rain.
Station 1	7	57	23.790	59	52	23.730	52	52	100	N. W.	12	.72	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	.....	.05	Light rain.
2			24.455	63	54	24.407	54	53.5	96.7	W.	22	2.42	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	.....	.17	Light rain.
3			25.905	66	58	25.829	58	58	100	N. W.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	.....	7.15 a. m.	.....	.10	Cloudy.
4			27.106	66	63	27.006	63	62	94.2	N. E.	1	.01	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	.....	Blk	Light rain.
Station 1	9	0	23.780	58	52	23.725	52	52	100	N. W.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Light rain.
2			24.458	63	54	24.410	54	54	100	W.	22	2.42	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Light rain.
3			25.910	68	59	25.829	59	58.5	96.9	N. W.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	8.25 a. m.	.....	.....	.....	Light rain.
4			27.110	67	63	27.007	63	62	94.2	W.	2	.02	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Light rain.
Station 1	10	0	23.772	59	52	23.712	52	52	100	W.	12	.72	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Light rain.
2			24.489	66	54	24.435	54	53.5	96.7	W.	19	1.80	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Light rain.
3			25.915	67	58	25.837	58	58	100	N. W.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Light rain.
4			27.120	67	63	27.017	63.5	62	91.5	W.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Light rain.
Station 1	11	0	23.780	59	52	23.720	52	52	100	W.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Light rain.
2			24.489	68	53	24.431	53	53	100	N. W.	19	1.80	....	Stratus	4-4	Hidden	....	.....	.....	.....	10.30 a. m.	.....	.44	Cloudy.
3			25.915	67.5	59	25.836	59	59	100	N. W.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	10.30 a. m.	.....	.44	Cloudy.
4			27.115	67	65	27.012	65	63	89.0	W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	10.40 a. m.	.....	.34	Cloudy.
Station 1	12 m.		23.780	60	53	23.717	53	53	100	N. W.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	11.45 a. m.	.....	.08	Cloudy.
2			24.499	68	54	24.441	54	54	100	N. W.	18	1.62	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
3			25.915	68	61.5	25.834	61.5	60	91.2	N.	5	.12	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.
4			27.120	71	69	27.008	69	65	79.6	N. W.	2	.02	94	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	.....	Cloudy.

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Meteorological record for June 28, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	p. m.																				
Station 1	1 0	23.805	60	53	27.749	53	52	93	N. W.	24	2.88	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.500	70	55	24.437	55	55	100	N. W.	18	1.62	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.984	72	61.5	25.834	61.5	60.5	94.3	N.	4	.04	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.120	72	71	27.005	71	65.5	73.1	N. E.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1	2 0	23.810	60	53	23.747	53	53	100	N. W.	20	2.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.499	69	56	24.438	56	55	93.5	W.	11	.60	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.930	72.5	61.5	25.839	61.5	60.5	94.3	N. W.	5	.12	....	Stratus	3-4	Cumulus	1-4	N. W.	.....	.....	.....	Cloudy.
4		27.122	72.5	70	27.006	70	65	75.4	N. W.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1	3 0	23.810	60	53	23.747	53	53	100	N. W.	18	1.62	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.480	66	57	24.426	56	56	100	W.	18	1.62	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.929	73.5	67	25.836	67	63	79.0	N. W.	6	.18	....	Stratus	2-4	Cumulus	2-4	N. W.	.....	.....	.....	Cloudy.
4		27.130	76	73	27.006	73	67	71.6	N. W.	4	.08	....	Stratus	1-4	Cumulus	2-4	N.	.....	.....	.....	Cloudy.
Station 1	4 0	23.800	60	52	23.737	52	52	100	N. W.	12	.72	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.481	64	55	24.431	55	55	100	N. W.	18	1.62	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.930	74	63	25.835	63	60	83.1	N.	6	.18	....	Stratus	2-4	Cumulus	2-4	N. W.	.....	.....	.....	Cloudy.
4		27.130	76	74	27.006	74	67	67.7	N. W.	4	.08	....	Stratus	2-4	Cumulus	1-4	N. W.	.....	.....	.....	Cloudy.
Station 1	4 57	23.770	60	51	23.708	51	51	100	N. W.	22	2.42	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	Clearing.
2		24.469	61	57	24.426	56.5	53.5	81 0	N. W.	22	2.42	....	Stratus	1-4	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
3		25.930	74	63	25.835	63	57	67.0	N.	7	.24	....	0	0	Cumulus Cirrus	1-4 2-4	N. W. W.	.....	.....	.....	Fair.
4		27.139	79	71.5	27.007	72	62.5	56.0	N. W.	6	.18	....	Stratus	1-3	Cumulus	2-4	N. W.	.....	.....	.....	Fair.
Station 1	6 0	23.784	60	50	23.722	50	49	93	N.	30	4.50	....	Cumulus	1-3	Cirrus	2-4	N.	.....	.....	.....	Fair.
2		24.463	63	55	24.415	55	51.5	77.4	N. W.	19	1.80	....	Stratus	1-4	Cirrus	2-4	N. W.	.....	.....	.....	Fair.
3		25.932	77	62.5	25.831	62.5	56.5	66.7	N. W.	5	.12	....	0	0	Cirrus	3-4	W.	.....	.....	.....	Fair.
4		27.140	78	66	27.011	66	61	64.7	W.	4	.08	....	0	0	Cirrus	3-4	N. W.	.....	.....	.....	Fair.
Station 1	7 0	23.795	59	50	23.735	50	49	93	W.	24	2.88	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.467	66	53.5	24.434	53.5	52	89.9	N.	15	1.12	....	Stratus	3-4	Cirrus	1-4	N. W.	.....	.....	.....	Cloudy.
3		25.939	76.5	60.5	25.839	60.5	56.5	76.7	N. W.	6	.18	....	0	0	Cumulus Cirrus	1-4 2-4	N. W. W.	.....	.....	.....	Fair.
4		27.140	75	66	27.018	66.5	61	71.3	N. W.	4	.08	....	Stratus	1-4	Cirrus	1-4	N. W.	.....	.....	.....	Cloudy.
Station 1	8 0	23.835	64	49	23.764	49	48	93	N.	10	.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.485	59	52	24.446	52	51.5	96.5	N.	16	1.28	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		25.950	73	58.5	25.856	58.5	56.5	67.7	N. E.	5	.12	....	Stratus	1-4	Cumulus	1-4	N. W.	.....	.....	.....	Fair.
4		27.150	70	61	27.040	61	59	82.8	N. W.	4	.08	....	Stratus	1-4	Cirrus	1-4	N. W.	.....	.....	.....	Fair.
Station 1	9 0	23.879	71	49	23.780	49	48	93	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.503	65	51	24.453	51	50	92.0	N. E.	5	.19	....	Stratus	3-4	0	0	.....	.....	.....	.....	Fair.
3		25.994	68.5	57.5	25.870	57.5	55	81.4	N.	4	.12	....	Stratus	1-4	Cirrus	2-4	N.	.....	.....	.....	Fair.
4		27.101	68	49	27.000	60	57	82.2	N. W.	4	.08	....	Stratus	1-4	Cirrus	1-4	N. W.	.....	.....	.....	Fair.

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Station 1																									
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Station 1			21.511	68	.50	21.4	6.50	49	72.7	E.	11	.10	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.
2			24.511	68	.50	24.4	6.50	49	72.7	E.	11	.10	....	Stratus	2-4	0	0	.....	.....	.....	.....	Fair.
3	10	0	25.040	61.5	56.5	25.875	56.5	54	81.2	S. E.	1	.01	....	0	0	0	0	.....	.....	.....	.....	Clear.
4			27.167	59	56	27.037	57	55	87.4	N. E.	2	.02	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1			23.876	70	47	23.794	47	44	77	0	0	0	....	Stratus	1-8	0	0	.....	.....	.....	.....	Clear.
2			24.509	67	48	24.453	48	45	77.7	E.	6	.18	....	0	0	0	0	.....	.....	.....	.....	Clear.
3	11	22	25.930	62	54.5	25.872	54.5	52	83.6	E.	1	.01	....	0	0	0	0	.....	.....	.....	.....	Clear.
4			27.147	64	54	27.049	55	52	80.5	N. E.	4	.08	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1			23.876	58	47	23.790	47	44	77	0	0	0	....	0	0	0	0	.....	.....	.....	.....	Clear, (aurora.)
2	12	0	24.510	65	48	24.458	48	44.5	74.0	S.	8	.32	420	0	0	0	0	.....	.....	.....	.....	Clear.
3	mid-		25.936	61.5	53.5	25.879	53.5	49.5	73.5	E.	1	.01	92	0	0	0	0	.....	.....	.....	.....	Clear.
4	night.		27.143	63	53	27.052	54	51	80.2	N.	4	.08	....	0	0	0	0	.....	.....	.....	.....	Clear.

Meteorological record for June 29, 1873.

Station 1			23.883	74	46	23.791	46	42	68	0	0	0	....	Stratus	1-8	0	0	.....	.....	.....	.....	Clear.
2			24.510	66	50	24.456	50	45	61.6	S.W.	13	.84	....	0	0	0	0	.....	.....	.....	.....	Clear.
3	1	0	25.944	66	54	25.868	54	50	73.8	E.	2	.02	....	0	0	0	0	.....	.....	.....	.....	Clear.
4			27.151	61	53	27.063	54	51	80.2	N.	4	.08	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1			23.870	72	46	23.782	46	42	68	0	0	0	....	Stratus	1-8	0	0	.....	.....	.....	.....	Clear.
2			24.534	74	50	24.463	50	44	58.1	S.	14	.98	....	0	0	0	0	.....	.....	.....	.....	Clear.
3	2	0	25.948	64	54	25.877	54	50	73.8	E.	1	.01	....	0	0	0	0	.....	.....	.....	.....	Clear.
4			27.150	59.5	53	27.065	54	51	80.2	N.E.	4	.08	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1			23.869	71	46	23.774	46	42	68	0	0	0	....	Stratus	1-8	0	0	.....	.....	.....	.....	Clear.
2			24.517	70	49.5	24.454	49.5	44	61.1	S.W.	10	.50	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.
3	3	0	25.940	65	54.5	25.866	54.5	49	64.7	E.	2	.02	....	0	0	0	0	.....	.....	.....	.....	Clear.
4			27.130	59	53	27.046	54	51	80.2	N.E.	4	.08	....	0	0	0	0	.....	.....	.....	.....	Clear.
Station 1			23.835	68	46	23.755	46	42	68	0	0	0	....	Stratus	1-8	0	0	.....	.....	.....	.....	Clear.
2			24.506	66	50	24.452	50	44.5	61.5	S.W.	11	.60	....	Stratus	2-4	0	0	.....	.....	.....	.....	Fair.
3	4	0	25.945	67.5	54	25.866	54	49	67.4	0	0	0	....	0	0	0	0	.....	.....	.....	.....	Clear.
4			27.120	58	53	27.049	54	51	80.2	N.E.	4	.08	....	Stratus	2-4	0	0	.....	.....	.....	.....	Fair.
Station 1			23.860	68	47	23.780	47	42	62	0	0	0	....	Stratus	1-8	Cumulus	1-16	.....	.....	.....	.....	Fair.
2			24.510	65	50.5	24.458	50.5	44.5	58.6	W.	12	.72	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.
3	5	0	25.950	67	54.5	25.872	54.5	49	64.7	S.E.	1	.01	....	0	0	Cirro-cum	2-4	N.W.	.....	.....	.....	Fair.
4			27.145	57	52.5	27.066	53.5	50.0	76.7	N.E.	4	.08	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.
Station 1			23.870	68	48	23.790	48	43	63	W.	5	.12	....	Stratus	1-8	Cumulus	1-16	.....	.....	.....	.....	Fair.
2			24.520	65	52	24.468	51	46	65.3	W.	10	.50	....	0	0	0	0	.....	.....	.....	.....	Clear.
3	6	0	25.967	67.5	54.5	25.888	54.5	49	64.7	0	0	0	....	0	0	0	0	.....	.....	.....	.....	Clear.
4			27.150	58	54	27.069	55	51	74.3	N.E.	4	.08	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.
Station 1			23.885	73	51	23.795	51	45	59	W.	7	.24	....	Hazy	....	0	0	.....	.....	.....	.....	Clear.
2			24.545	69	54.5	24.481	54.5	47.5	55.7	W.	14	.98	....	Stratus	1-4	0	0	.....	.....	.....	.....	Fair.
3	7	0	25.977	67	56	25.899	56	50.5	65.7	0	0	0	....	Hazy	....	0	0	.....	.....	.....	.....	Clear.
4			27.170	61.5	58	27.081	59	53.5	67.5	N.E.	4	.08	....	Stratus	1-8	0	0	.....	.....	.....	.....	Clear.
Station 1			23.910	72	53	23.822	53	47	60	W.	2	.02	....	Hazy	....	0	0	.....	.....	.....	.....	Clear.
2			24.540	68	56	24.482	56	53.5	84.0	S.	12	.72	....	Stratus	1-4	Cirrus	1-4	W.	.....	.....	.....	Fair.
3	7	57	25.975	65	57	25.901	59	53	64.7	E.	1	.01	....	Hazy	....	Cirrus	1-4	W.	.....	.....	.....	Fair.
4			27.183	65	65	27.085	65.5	58	60.9	N.E.	2	.02	....	0	0	Cirrus	1-4	N.W.	.....	.....	.....	Fair.

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Meteorological record for June 29, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	a. m.																				
Station 1		23.920	70	54	23.836	54	49	68	0	0	0	....	Hazy	....	Cumulus	3-4	....	....	....	....	Fair.
2	9 0	24.560	66	57	24.506	56	51	68.7	W.	10	.50	....	Stratus	2-4	Cirrus	1-4	W.	....	....	....	Fair.
3		25.992	65	61.5	25.918	61.5	55	63.5	E.	1	.01	....	Stratus	1-4	Cumulus	3-4	N.W.	....	....	....	Cloudy.
4		27.199	66	68	27.099	68	60.5	62.4	N.E.	2	.02	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Station 1		23.920	69	54	23.838	54	48	61	W.	2	.02	....	Smoke	....	Cumulus	4-4	....	....	....	....	Cloudy.
2	10 0	24.576	72	59.5	24.509	59	52	59.2	W.	14	.98	....	Stratus	2-4	Cirrus	1-4	W.	....	....	....	Fair.
3		26.000	65	63	25.926	63	56	61.9	E.	2	.02	....	Stratus	3-4	Cumulus	3-4	N.W.	....	....	....	Cloudy.
4		27.211	69	71.5	27.103	71	60	64.2	0	0	0	....	Stratus	4-4	Hidden	....	....	....	....	....	Cloudy.
Station 1		23.935	70	56	23.851	56	50	62	N.W.	2	.02	....	Smoke	....	Cumulus	1-4	N.W.	....	....	....	Fair.
2	11 0	24.580	72	62	24.513	61	53	55.3	N.W.	12	.72	....	0	0	Cumulus	2-4	N.W.	....	....	....	Fair.
3		26.005	66	66	25.929	66	56	49.5	W.	5	.12	....	Smoky	....	Cumulus	1-4	W.	....	....	....	Fair.
4		27.219	71.5	72	27.106	72	59.5	43.7	N.E.	2	.02	....	0	0	Cumulus	1-4	N.W.	....	....	....	Fair.
Station 1		23.935	69	57	23.853	57	52	69	N.W.	2	.02	....	Hazy	....	Cumulus	1-4	N.W.	....	....	....	Fair.
2	12 m.	24.579	68	64	24.521	63	57	67.0	W.	10	.50	....	0	0	Cumulus	2-4	W.	....	....	....	Fair.
3		26.000	67	69	25.922	69	58	47.5	W.	4	.08	....	Smoky	....	Cumulus	1-4	W.	....	....	....	Fair.
4		27.208	75	76	27.086	76	61.5	39.4	N.W.	4	.08	83	0	0	Cumulus	2-4	N.W.	....	....	....	Fair.
Station 1	p. m.	23.933	67	57	23.855	57	51	69	N.W.	1	.01	....	Hazy	....	Cumulus	4-4	....	....	....	....	Cloudy.
2		24.580	75	67	24.509	66	56	49.5	W.	11	.60	....	0	0	Cumulus	2-4	W.	....	....	....	Fair.
3	1 0	26.005	76	71	25.906	71	61	53.2	W.	2	.02	....	Smoky	....	Cumulus	2-4	W.	....	....	....	Fair.
4		27.199	77	78.5	27.072	78	63	39.2	N.W.	6	.18	....	0	0	Cumulus	2-4	W.	....	....	....	Fair.
Station 1		23.925	68	58	23.850	58	52	63	N.W.	2	.02	....	Hazy	....	Cumulus	3-4	N.W.	....	....	....	Fair.
2		24.599	79	65	24.517	64	54	47.9	W.	11	.60	....	Stratus	1-4	Cumulus	2-4	W.	....	....	....	Fair.
3	2 0	26.005	78	73	25.901	73	62	50.4	W.	6	.18	....	Smoky	....	Cumulus	2-4	W.	....	....	....	Fair.
4		27.203	80	78.5	27.069	79	65	43.4	N.W.	6	.18	....	0	0	Cumulus	2-4	S.W.	....	....	....	Fair.
Station 1		23.925	66	58	23.850	58	53	69	W.	2	.02	....	Hazy	....	Cumulus	3-4	W.	....	....	....	Fair.
2		24.589	76	67	24.513	66	57	54.3	W.	11	.60	....	Stratus	1-4	Cumulus	2-4	W.	....	....	....	Fair.
3	3 0	26.010	79	74	25.904	74	63	51.1	W.	5	.12	....	Smoky	....	Cumulus	2-4	W.	....	....	....	Fair.
4		27.200	81	78.5	27.064	78.5	64.5	43.0	N.W.	4	.08	....	0	0	Cumulus	2-4	S.W.	....	....	....	Fair.
Station 1		23.940	65	58	23.857	58	53	69	N.W.	1	.01	....	Hazy	....	Cumulus	3-4	W.	....	....	....	Fair.
2		24.589	73	68	24.513	67	58	55.0	W.	12	.72	....	Stratus	1-4	Cumulus	2-4	W.	....	....	....	Fair.
3	4 0	26.015	76	71	25.910	71	61	53.2	W.	4	.08	....	Smoky	....	Cumulus	2-4	W.	....	....	....	Fair.
4		27.210	81	77	27.074	77	65	49.3	N.W.	6	.18	....	Hazy	....	Cumulus	3-4	W.	....	....	....	Cloudy.
Station 1		23.925	65	58	23.852	58	53	69	N.W.	6	.18	....	Hazy	....	Cumulus	4-4	S.W.	....	....	....	Cloudy.
2		24.575	72	66.5	24.508	65.5	57	56.1	W.	11	.60	....	Stratus	1-4	Cumulus	2-4	W.	....	....	....	Fair.
3	4 57	26.000	74.5	71	25.901	71	62	57.6	W.	2	.02	....	Smoky	....	Cumulus	2-4	W.	....	....	....	Fair.
4		27.160	82	78	27.060	78	66	49.9	W.	4	.08	....	0	0	Cumulus	2-4	W.	....	....	....	Fair.

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Station 1			24.920	04	57	24.[illegible]	57	53	85	S.	8	.32	....	Hazy		Cumulus	4-4	S.					
2			24.55	75	61	24.501	61.5	56	88.9	S. W.	11	.00	....	Stratus	3-4	Cirrus	1-4	W.					Cloudy
3	6	0	25.00	74	67.5	25.000	67	5 61	66.0	S. E.	2	.03	....	Smoky		Cumulus	3-4	W.					Cloudy
4			27.195	88	74	27.056	74.5	65	57.5	W.	4	.08	....	Stratus	2-4	Cirrus	1-4						Fair.
Station 1			23.922	63	55	23.853	55	54	93	S.	10	.50	....	Stratus	4-4	Hidden							Fair.
2			24.580	75	58.5	24.506	58.5	56	85.7	S.W.	17	1.44	....	Stratus	3-4	Cirrus	1-4	W.					Threatening.
3	7	0	25.002	71.5	64.5	25.003	64.5	61	80.8	E.	7	.24	....	Smoky		Cumulus	1-4	S.					Cloudy.
																Cirrus	2-4	N.					
4			27.900	79	70	27.068	70	64	70.4	S.W.	4	.08	....	Stratus	1-4	Cirrus	2-4	N. W.					Cloudy.
Station 1			23.920	63	54	23.851	54	54	100	S.	14	.98	....	Stratus	4-4	Hidden							Threatening.
2			24.578	72	57	24.511	57	56	93.6	S.	20	2.00	....	Stratus	3-4	Cirrus	1-4	W.					Cloudy.
3	8	0	25.993	69.5	63	25.909	63	60.5	85.8	E.	6	.18	....	Stratus	1-4	Cumulus	2-4	S. W.					Cloudy.
4			27.193	75	68	27.071	68	64	79.3	S.	6	.18	....	Stratus	3-4	Hidden							Cloudy.
Station 1			23.930	62	54	23.863	54	54	100	S.	20	2.00	....	Stratus	4-4	Hidden							Cloudy.
2			24.583	71	56.5	24.518	56.5	55	90.4	S.W.	17	1.44	....	Stratus	3-4	Cirrus	1-4	W.					Cloudy.
3	9	0	26.003	68	62.5	25.922	62.5	60	85.7	S.W.	7	.24	....	Stratus	2-4	Cumulus	2-4	S. W.					Cloudy.
4			27.222	75	68	27.100	68	64	79.3	S.W.	4	.08	....	Stratus	4-4	Hidden							Cloudy.
Station 1			23.918	61	54	23.853	54	54	100	S.W.	24	2.88	....	Stratus	4-4	Hidden							Cloudy.
2			24.573	68	56.5	24.515	56.5	55.5	90.5	S.W.	16	1.28	....	Stratus	4-4	Hidden							Cloudy.
3	10	0	26.000	66	63.5	25.924	63.5	60	80.5	S. E.	6	.18	....	Stratus	3-4	Hidden							Cloudy.
4			27.229	76.5	69.5	27.104	70	63	65.8	S.	3	.04	....	Stratus	3-4	Hidden							Cloudy.
Station 1			23.940	61	54	23.875	54	51	79	S.W.	18	1.62	....	Cumulus	2-4	0	0	0					Clearing.
2			24.585	70	56.5	24.522	56.5	54	87.2	S.W.	11	.60	....	Stratus	2-4	0	0	0					Fair.
3	11	22	26.005	65.5	63.5	25.931	63.5	59	75.1	S.	1	.01	....	Stratus	3-4	Hidden							Cloudy.
4			27.230	72.5	65	27.114	65.5	61	75.9	S.W.	2	.02	....	Stratus	3-4	Hidden							Cloudy.
Station 1			23.940	63	54	23.871	54	51	79	S.W.	12	.72	....	Cumulus	2-4	0	0	0					Fair.
2	12	0	24.595	71	57	24.530	57	55.5	84.5	W.	14	.98	320	Stratus	3-4	Hidden							Fair.
3	mid-		26.008	65.5	64	25.934	64	60	78.0	0	0	0	79	Stratus	3-4	Hidden							Cloudy.
4	night.		27.222	71	64	27.110	65	60.5	75.7	S.W.	2	.02	....	Stratus	3-4	0	0	0					Cloudy.

Meteorological record for June 30, 1873.

	a. m.																						
Station 1			23.950	70	54	23.866	54	53	93	S. W.	18	1.62	....	Cumulus	2-4	0	0						Fair.
2	1	0	24.600	73	57	24.531	57	55	87.4	S. W.	14	.98	....	Stratus	2-4	0	0						Fair.
3			26.019	65.5	63	25.934	63	59	77.6	S. E.	5	.12	....	Stratus	1-4	0	0						Fair.
4			27.230	71.5	63.5	27.117	64	60	78.0	S. E.	3	.04	....	Stratus	1-4	0	0						Fair.
Station 1			23.950	69	54	23.868	54	53	93	S. W.	12	.72	....	Cumulus	2-4	0	0						Fair.
2	2	0	24.585	71	56	24.520	56	54.5	90.3	S. W.	17	1.44	....	Stratus	1-4	0	0						Fair.
3			26.015	65.5	62.5	25.940	62.5	59.5	82.9	S. E.	7	.21	....	0	0	0	0						Clear.
4			27.215	70	61.5	27.105	62.5	59	84.2	S. E.	3	.04	....	Stratus	1-4	0	0						Fair.
Station 1			23.945	68	53	23.865	53	52	93	W.	20	2.00	....	Cumulus	3-4	0	0						Fair.
2	3	0	24.569	67	55	24.513	55	54	87.2	S. W.	17	1.44	....	Stratus	2-4	0	0						Fair.
3			26.010	65	62	25.936	62	59.5	85.6	S. E.	10	.50	....	Stratus	4-4	Hidden							Cloudy.
4			27.213	69	61	27.105	61.5	59	85.5	S. W.	4	.08	....	Stratus	1-4	0	0						Fair.
Station 1			23.945	68	53	23.865	53	53	100	W.	18	1.62	....	Cumulus	2-4	0	0						Fair.
2	4	0	24.560	63	55	24.512	55	55	100	S. W.	13	.84	....	Stratus	4-4	Hidden							Cloudy.
3			26.000	64.5	61	25.928	61	59	88.2	S. E.	8	.32	....	Stratus	4-4	Hidden							Cloudy.
4			27.210	68.5	60.5	27.103	61.5	59	85.5	S. E.	2	.02	....	Stratus	2-4	0	0						Fair.

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Meteorological record for June 30, 1873—Continued.

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM Dry bulb.	HYGROM Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Remarks.
	a. m.																				
Station 1	5 0	23.955	71	53	23.869	53	53	100	W.	12	.72	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.575	63	55.5	24.527	55.5	55	96.7	S. W.	19	1.80	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		26.015	64	60	25.944	60	59	94.0	S. W.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.209	67	61	27.106	62	60	88.4	S. E.	3	.04	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1	6 0	23.960	73	53	23.870	53	53	100	W.	8	.32	....	Cumulus	2-4	0	0	0	.....	.....	.....	Fair.
2		24.570	63	57	24.522	56.5	55.5	93.5	W.	19	1.80	....	Stratus	2-4	Cirrus	1-4	N.	.....	.....	.....	Fair.
3		26.020	64.5	61	25.948	61	59.5	91.1	S. E.	5	.12	....	0	0	Cirrus	2-4	W.	.....	.....	.....	Fair.
4		27.222	68.5	65	27.116	65.5	62	81.1	S. E.	2	.02	....	Stratus	2-4	0	0	.....	.....	.....	.....	Fair.
Station 1	7 0	23.965	74	53	23.873	53	53	100	W.	10	.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.597	67	56	24.541	55.5	55	96.7	S. W.	13	.84	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		26.030	68	61	25.949	61	60	94.1	S. E.	5	.12	....	Stratus	2-4	Cumulus	1-4	S. E.	.....	.....	.....	Cloudy.
4		27.245	70	69	27.135	69	64	74.7	W.	2	.02	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1	7 57	23.954	72	53	23.866	53	53	100	S. W.	30	4.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.576	66	55.5	24.522	55.5	55	96.7	S. W.	20	2.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		26.040	66.5	62	25.963	62	60	88.4	S. E.	6	.18	....	Stratus	2-4	Cirro-cum	1-4	S. W.	.....	.....	.....	Cloudy.
4		27.249	70	69	27.139	69	64	74.7	S. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1	9 0	23.949	69	53	23.867	55	55	100	S. W.	14	.98	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.580	61	56	24.537	56	56	100	S. W.	24	2.88	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		26.035	65	63	25.961	63	61	88.6	S.	7	.24	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.250	70	70	27.140	70	65	75.1	W.	2	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1	10 0	23.955	68	54	23.875	54	54	100	W.	24	2.88	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.580	62	58	24.535	57	56	93.6	S. W.	25	3.12	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		26.028	64.5	64.5	25.956	64.5	61.5	83.4	S. W.	11	.60	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.250	70	71	27.139	71	64	66.3	N. E.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1	11 0	23.955	60	51	23.873	51	51	100	S. W.	30	4.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.586	63	55	24.538	55	53	96.9	S. W.	31	4.80	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		26.039	64.5	62	25.966	62	59	82.8	S. W.	7	.24	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.257	71	69	27.144	69	63	70.0	S. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
Station 1	12 m.	23.955	70	53	23.871	53	53	100	S. W.	22	2.42	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
2		24.580	62	56	24.535	55	55	100	S. W.	34	5.78	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
3		26.035	64.5	62.5	25.953	62.5	59.5	82.0	S. W.	10	.50	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.202	72	69	27.146	69	63	70.0	S. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
	p. m.																				
Station 1	1 0	23.900	70	53	23.870	53	53	100	S. W.	30	4.50	....	Nimbus	4-4	Hidden	....	.....	1.00 p. m.	.....	.....	Light rain.
2		24.500	63	55	24.543	55	55	100	S. W.	29	4.20	....	Nimbus	4-4	Hidden	....	.....	12.30 p. m.	.....	.....	Light rain.
3		26.040	64	64	25.960	63	63	94	W.	11	.66	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.
4		27.251	69	70	27.167	69	64	76	W.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	Cloudy.

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M.—*Meteorological record for the five days ending May 5, 1873.*

(Hourly observations.)

NOTE.—Station: Portland, Maine. Elevation of barometer above sea-level, 52 feet.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer—daily mean.	Remarks.
																				°	
	7 0 a. m.	30.16	58	51	51	44	52	W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	8 2 a. m.	30.17	62	60	60	48	34	0	0	0	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	12 27 p. m.	30.08	63	62	62	47	22	S. W.	12	.72	....	0	0	Hazy	....	.....	.....	.....	.....	....	Fair.
Thursday, May 1	2 0 p. m.	30.05	64	62	62	49	31	S.	12	.72	162	0	0	Cirrus	1-4	W.	.....	.....	.....	53.2	Fair.
	5 2 p. m.	30.01	61	55	55	45	38	S.	10	.50	....	0	0	Cirro-cum	1-4	W.	.....	.....	.....	....	Fair.
	9 0 p. m.	30.00	60	50	50	45	64	0	0	0	....	Hazy	....	Hazy	....	.....	.....	.....	.....	....	Fair.
	11 27 p. m.	30.00	60	51	51	44	52	0	0	0	....	Hazy	....	Hazy	....	.....	.....	.....	.....	....	Fair.
	7 0 a. m.	30.07	57	44	44	37	45	N. E.	8	.32	....	Stratus	1-4	Cirrus	1-4	S. W.	.....	.....	.....	....	Fair.
	8 2 a. m.	30.07	58	45	45	36	31	N. E.	8	.32	....	Stratus	2-4	Cirrus	2-4	W.	.....	.....	.....	....	Cloudy.
	12 27 p. m.	30.04	67	45	45	37	38	E.	12	.72	....	Stratus	2-4	Cirrus	2-4	S. W.	.....	.....	.....	....	Threatening.
Friday, May 2	2 0 p. m.	30.03	65	43	43	40	75	N. E.	12	.72	162	Stratus	2-4	Cirrus	2-4	.....	.....	.....	.....	40.7	Threatening.
	5 2 p. m.	29.93	63	40	40	36	64	N. E.	12	.72	....	Stratus	4-4	Hidden	....	.....	4.30 p. m.	.....	.02	....	Sleet.
	9 0 p. m.	29.89	61	38	38	36	81	N. E.	18	1.62	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Light rain.
	11 27 p. m.	29.83	61	36	36	35	90	N. E.	20	2.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.16	....	Light rain.
	7 0 a. m.	29.71	58	35	35	34	90	N.	20	2.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Snow.
	8 2 a. m.	29.71	59	34	34	33	89	N.	20	2.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.28	....	Heavy snow.
	12 27 p. m.	29.70	61	36	36	35	90	N. E.	20	2.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Light rain.
Saturday, May 3	2 0 p. m.	29.72	61	36	36	35	90	N. E.	20	2.00	399	Stratus	4-4	Hidden	....	.....	.....	.....	.....	36.2	Light rain.
	5 2 p. m.	29.74	61	36	36	35	90	N. E.	20	2.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.14	....	Light rain.
	9 0 p. m.	29.74	61	37	37	35	80	N. E.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	11 27 p. m.	29.75	56	38	38	34	66	N. E.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	5.20 p. m.	.02	....	Cloudy.
	7 0 a. m.	29.85	61	43	43	35	35	N. E.	8	.32	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	8 2 a. m.	29.86	62	45	45	35	24	N. E.	8	.32	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	12 27 p. m.	29.87	60	58	58	44	21	N. W.	4	.08	....	0	0	0	0	0	.....	.....	.....	....	Clear.
Sunday, May 4	2 0 p. m.	29.87	61	58	58	44	21	N. E.	2	.02	283	0	0	0	0	0	.....	.....	.....	46.7	Clear.
	5 2 p. m.	29.88	62	49	49	40	37	S. W.	16	1.28	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	9 0 p. m.	29.92	58	43	43	39	66	S. W.	8	.32	....	0	0	Hazy	....	.....	.....	.....	.....	....	Fair.
	11 27 p. m.	29.91	57	43	43	39	66	S. W.	8	.32	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	7 0 a. m.	29.87	57	51	51	43	46	S. W.	8	.32	....	Stratus	2-4	Cirrus	2-4	S. W.	.....	.....	.....	....	Threatening
	8 2 a. m.	29.89	57	50	50	44	47	S.	8	.32	....	Stratus	2-4	Cirrus	2-4	S. W.	.....	.....	.....	....	Cloudy.
	12 27 p. m.	29.93	60	58	58	44	42	N. W.	10	.50	....	Stratus	1-4	Cumulus	2-4	W.	.....	.....	.....	....	Cloudy.
Monday, May 5	2 0 p. m.	29.98	61	60	60	47	34	W	8	.32	303	0	0	Cumulus	2-4	W.	.....	.....	.....	51.7	Fair.
	5 2 p. m.	30.01	65	59	59	47	31	N.	8	.32	....	0	0	Cumulus	1-4	0	.....	.....	.....	....	Fair.
	9 0 p. m.	30.11	61	41	41	40	71	N. W.	4	.08	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	11 27 p. m.	30.17	60	41	41	40	71	N. W.	4	.08	....	0	0	0	0	0	.....	.....	.....	....	Clear.

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Meteorological record for the five days ending May 10, 1873.

	7	0 a. m.	30.31	58	47	47	57	27	N.	4	.08	...	0	0	0	0	0	.....	.....	.....	....	Clear.
	8	2 a. m.	30.33	62	49	49	58	24	N.	6	.18	...	0	0	0	0	0	.....	.....	.....	....	Clear.
	12	27 p. m.	30.29	58	58	58	12	13	N. W.	10	.50	...	0	0	0	0	0	.....	.....	.....	....	Clear.
Tuesday, May 6	2	0 p. m.	30.28	61	57	57	44	25	S.	6	.18	120	0	0	0	0	0	.....	.....	.....	....	Clear.
	5	2 p. m.	30.25	60	51	51	40	21	S.	8	.32	...	0	0	0	0	0	.....	.....	.....	50.0	Clear.
	9	0 p. m.	30.09	59	48	48	40	43	0	0	0	...	0	0	0	0	0	.....	.....	.....	....	Clear.
	11	27 p. m.	30.32	58	46	46	39	47	0	0	0	...	0	0	0	0	0	.....	.....	.....	....	Clear.
	7	0 a. m.	30.42	59	44	44	49	59	N. E.	8	.32	...	0	0	0	0	0	.....	.....	.....	....	Clear.
	8	2 a. m.	35.44	62	47	47	41	55	N. E.	8	.32	...	0	0	0	0	0	.....	.....	.....	....	Clear.
	12	27 p. m.	30.41	59	55	55	44	33	S. E.	4	.08	...	0	0	0	0	0	.....	.....	.....	....	Clear.
Wednesday, May 7	2	0 p. m.	30.38	59	53	53	43	36	S.	10	.50	135	0	0	0	0	0	.....	.....	.....	45.2	Clear.
	5	2 p. m.	30.36	58	48	48	40	42	S. W.	13	.84	...	0	0	Cumulus	1-4	N.	.....	.....	.....	....	Fair.
	9	0 p. m.	30.41	62	42	42	38	66	S. W.	4	.08	...	0	0	0	0	0	.....	.....	.....	....	Clear.
	11	27 p. m.	30.44	63	41	41	38	73	S. W.	2	.02	...	0	0	0	0	0	.....	.....	.....	....	Clear.
	7	0 a. m.	30.45	57	49	49	45	64	0	0	0	...	0	0	Cirrus	1-4	W.	.....	.....	.....	....	Fair.
	8	2 a. m.	30.47	60	50	50	44	58	S. W.	2	.02	...	0	0	Cirrus	1-4	W.	.....	.....	.....	....	Fair.
	12	27 p. m.	30.40	57	54	54	42	26	S.	16	1.28	...	0	0	Cirrus	1-4	S. W	.....	.....	.....	....	Fair.
Thursday, May 8	2	0 p. m	30.40	59	52	52	41	29	S.	16	1.28	136	0	0	Cirrus	1-4	S. W.	.....	.....	.....	45.7	Fair.
	5	2 p. m.	30.39	66	49	49	40	37	S.	14	.98	...	0	0	Cirrus	1-4	N. W.	.....	.....	.....	....	Fair.
	9	0 p. m.	30.39	64	41	41	38	73	S. W.	4	.08	...	0	0	Hazy	....	....	.....	.....	.....	....	Fair.
	11	27 p. m.	30.37	63	40	40	37	73	0	0	0	...	0	0	Hazy	....	....	.....	.....	.....	....	Fair.
	7	0 a. m.	30.33	57	42	42	40	83	0	0	0	...	Stratus	2-4	Cirrus	2-4	S. W.	.....	.....	.....	....	Threatening.
	8	5 a. m.	30.33	58	45	45	42	76	N. E.	2	.02	...	Stratus	2-4	Cirrus	2-4	S. W.	.....	.....	.....	....	Threatening.
	12	27 p. m.	30.34	67	49	49	43	57	E.	2	.02	...	Stratus	2-4	Cirrus	2-4	....	.....	.....	.....	....	Cloudy.
Friday, May 9	2	0 p. m.	30.34	66	51	51	44	52	S. E.	4	.08	139	Stratus	1-4	Cirrus	2-4	S. W.	.....	.....	.....	45.2	Cloudy.
	5	2 p. m.	30.30	66	46	46	41	61	E.	4	.08	...	Stratus	2-4	Cirrus	2-4	S. W.	.....	.....	.....	....	Threatening.
	9	0 p. m.	30.26	62	44	44	40	67	N. E.	4	.08	...	Stratus	3-4	Hidden	....	....	.....	.....	.....	....	Cloudy.
	11	27 p. m.	30.25	63	44	44	40	67	0	0	0	...	Stratus	3-4	Hidden	....	....	.....	.....	.....	....	Cloudy.
	7	0 a. m.	30.16	56	43	43	42.5	95	N. E.	8	.32	...	Nimbus	4-4	Hidden	....	....	.....	.....	.....	....	Heavy rain.
	8	2 a. m.	30.16	56	43	43	43	100	N. E.	8	.32	...	Nimbus	4-4	Hidden	....	....	1.30 a. m.	.....	.38	....	Light rain.
	12	27 p. m.	30.13	66	46	46	45	92	0	0	0	...	Fog	....	Hidden	....	....	.....	.....	.....	....	Light rain.
Saturday, May 10	2	0 p. m.	30.11	67	45	45	44	92	0	0	0	110	Fog	....	Hidden	....	....	.....	.....	.....	45.0	Foggy.
	5	2 p. m.	30.09	63	45	45	44.5	95	0	0	0	...	Fog	....	Hidden	....	....	.....	.....	.61	....	Foggy.
	9	0 p. m.	30.10	60	46	46	45	92	0	0	0	...	Fog	....	Hidden	....	....	.....	.....	.....	....	Foggy.
	11	27 p. m.	30.10	63	46	46	45	92	0	0	0	...	Fog	....	Hidden	....	....	.....	.....	.01	....	Foggy.

Meteorological record for the five days ending May 15, 1873.

	7	0 a. m.	30.04	62	47	47	46	92	N. E.	4	.08	...	Fog	....	Hidden	....	....	.....	.....	.....	....	Foggy.
	8	2 a. m.	30.04	61	47	47	46	92	N. E.	4	.08	...	Fog	....	Hidden	....	....	.....	.....	.05	....	Light rain.
	12	27 p. m.	29.98	60	45	45	44	92	N. E.	4	.08	...	Fog	....	Hidden	....	....	.....	.....	.....	....	Foggy.
Sunday, May 11	2	0 p. m.	29.92	60	44	44	44	100	N. E.	6	.18	21	Fog	....	Hidden	....	....	.....	.....	.....	45.7	Light rain.
	5	2 p. m.	29.87	65	44	44	44	100	N. E.	10	.50	...	Nimbus	4-4	Hidden	....	....	.....	.....	.11	....	Light rain.
	9	0 p. m.	29.79	65	46	46	46	100	N. E.	4	.08	...	Nimbus	4-4	Hidden	....	....	.....	.....	.....	....	Light rain.
	11	27 p. m.	29.71	65	47	47	47	100	N.	4	.08	...	Nimbus	4-4	Hidden	....	....	.....	.....	.43	....	Light rain.

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Meteorological record for the five days ending May 15, 1873—Continued.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer—daily mean.	Remarks.
																				°	
	7 0 a. m.	29.62	62	50	50	49	96	S. W.	2	.02	....	Stratus....	4-4	Hidden....	....	.....	.....	.....	.....	....	Cloudy.
	8 2 a. m.	29.63	63	51	51	50	96	S. W.	2	.02	....	Nimbus....	4-4	Hidden....	....	.....	.....	.....	.....	....	Light rain.
	12 27 p. m.	29.60	63	59	59	54	70	W.	2	.02	....	Stratus....	2-4	Cumulus..	2-4	.....	.....	.....	.10	....	Cloudy.
Monday, May 12...	2 0 p. m.	29.61	63	62	62	55	61	N. W.	4	.08	110	Stratus....	2-4	Cumulus..	2-4	.....	.....	.....	.....	54.5	Cloudy.
	5 2 p. m.	29.63	63	61	61	55	65	N.	4	.08	....	0	0	Cumulus..	2-4	S. W.	.....	9.00 a. m.	.04	....	Fair.
	9 0 p. m.	29.69	61	53	53	48	66	0	0	0	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	11 27 p. m.	29.71	60	43	43	39	67	0	0	0	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	7 0 a. m.	29.67	64	51	51	47	72	S. W.	2	.02	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	8 2 a. m.	29.64	62	55	55	48	56	S.	6	.18	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	12 27 p. m.	29.48	62	52	52	47	66	S.	8	.32	....	Stratus....	4-4	Hidden....	....	.....	.....	.....	.....	....	Cloudy.
Tuesday, May 13...	2 0 p. m.	29.44	61	56	56	50	62	S.	12	.72	72	0	0	0	0	.....	.....	.....	.....	50.7	Clear.
	5 2 p. m.	29.38	60	58	58	54	75	S. W.	4	.08	....	Stratus....	1-4	Cumulus..	1-4	S. W.	.....	.....	.....	....	Fair.
	9 0 p. m.	29.55	56	48	48	40	42	N. W.	12	.72	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	11 27 p. m.	29.61	58	44	44	38	66	N. W.	2	.02	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	7 0 a. m.	29.68	59	47	47	39	41	S. W.	8	.32	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	8 2 a. m.	29.62	62	48	48	39	35	W.	12	.72	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	12 27 p. m.	29.62	64	53	53	51	86	S. W.	16	1.28	....	Stratus....	1-4	Cumulus..	1-4	W.	.....	.....	.....	....	Fair.
Wednesday, May 14	2 0 p. m.	29.60	60	53	53	42	30	W.	12	.72	239	0	0	Cumulus..	3-4	W.	.....	.....	.....	47.0	Cloudy.
	5 2 p. m.	29.60	63	53	53	42	30	N. W.	12	.72	....	0	0	Cumulus..	1-4	N.	.....	.....	.....	....	Fair.
	9 0 p. m	29.63	60	14	41	38	52	S. W.	4	.08	....	Stratus....	1-4	Cirrus.....	2-4	W.	.....	.....	.....	....	Cloudy.
	11 27 p. m.	29.62	58	42	42	36	50	W.	4	.08	....	Stratus....	2-4	Cirro-cum..	2-4	W.	.....	.....	.....	....	Cloudy.
	7 0 a. m.	29.65	59	45	45	32	56	N. W.	16	1.28	....	0	0	Cirrus.....	1-4	W.	.....	.....	.....	....	Fair.
	8 2 a. m.	29.66	62	47	47	33	46	N. W.	12	.72	....	0	0	Cirrus.....	1-4	W.	.....	.....	.....	....	Fair.
	12 27 p. m.	29.65	61	58	58	46	32	N. W.	12	.72	....	0	0	Cirrus.....	1-4	W.	.....	.....	.....	....	Fair.
Thursday, May 15..	2 0 p. m	29.70	65	61	61	47	25	N. W.	8	.32	236	0	0	Cumulus..	1-4	N. W.	.....	.....	.....	50.5	Fair.
	5 2 p. m	29.74	65	58	58	46	31	N. W.	12	.72	....	0	0	Cumulus..	1-4	N.	.....	.....	.....	....	Fair.
	9 0 p. m.	29.80	62	48	48	42	56	N. W.	8	.32	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	11 27 p. m.	29.81	61	45	45	41	68	N. W.	2	.02	....	0	0	0	0	.....	.....	.....	.....	....	Clear.

Meteorological record for the five days ending May 20, 1873.

	7 0 a. m.	29.81	60	49	49	43	57	W.	4	0[illegible]	....	Stratus	2-4	Cirro-cum	2-4	N.	.....	.....	.....	....	Cloudy.
	8 2 a. m.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	W.	4	0[illegible]	....	Stratus	2-4	Cirro-cum	2-4	N.	.....	.....	.....	....	Cloudy.
	12 27 p. m.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16	0[illegible]	....	Stratus	1-4	Cumulus	1-4	N.	.....	.....	.....	....	Fair.
Friday, May 16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	S. W.	[illegible]	[illegible]	[illegible]	0	0	Cumulus	1-4	N.	.....	.....	.....	....	Fair.

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	5 2 p. m.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	W.	1	.0		0	0	Cumulus	2-4						
	9 0 p. m.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0		Stratus	1-4	Cumulus	2-4						Cloudy.
	11 27 p. m.	29.[illegible]	[illegible]	[illegible]	52	[illegible]	[illegible]	[illegible]	W.	[illegible]	[illegible]		Stratus	2-4	Cirro-cum	2-4						Cloudy.
	7 0 a. m.	29.[illegible]	[illegible]	64	54	[illegible]	[illegible]	[illegible]	N. W.	4	.0[illegible]		Stratus	1-4	Cirrus	1-4	N. W.					Cloudy.
	8 2 a. m.	29.[illegible]	[illegible]	63	55	[illegible]	[illegible]	41	N. W.	[illegible]	.[illegible]		0	0	Cumulus	1-4	N. W.					Fair.
	12 27 p. m.	29.81	62	60	60	48	31	W.	12	.72			Stratus	1-4	Cumulus	2-4	N. E.					Fair.
Saturday, May 17	2 0 p. m.	29.80	64	60	60	47	29	N. W.	[illegible]	.52		123	0	0	Cumulus	3-4	N. E.				53.5	Cloudy.
	5 2 p. m.	29.82	63	58	58	45	42	N. W.	10	.70			Stratus	1-4	Cumulus	1-4	N. E.					Cloudy.
	9 0 p. m.	29.86	61	50	50	46	71	W.	2	.02			Stratus	2-4	Cumulus	2-4						Fair.
	11 27 p. m.	29.89	61	49	49	45	71	N. W.	4	.08			Stratus	2-4	Cumulus	1-4						Cloudy.
	7 0 a. m.	29.89	58	46	46	43	77	0	0	0			Nimbus	4-4	Hidden							Cloudy.
	8 2 a. m.	29.89	58	46	46	43	77	N. E.	4	.02			Stratus	4-4	Hidden			7.00 a.m.		.04		Light rain.
	12 27 p. m.	29.92	57	49	49	44	64	N. E.	4	.08			0	0	Cumulus	1-4	W.					Cloudy.
Sunday, May 18	2 0 p. m.	29.91	61	55	55	48	56	0	0	0		124	0	0	Cumulus	2-4	N. E.				50.2	Clearing.
	5 2 p. m.	29.91	62	55	55	45	38	N.	8	.32			0	0	Cumulus	2-4	N. E.		12.00 m.	.09		Fair.
	9 0 p. m.	29.96	61	50	50	42	45	N. W.	4	.03			0	0	0	0						Clear.
	11 27 p. m.	29.84	60	45	49	39	53	W.	8	.32			0	0	0	0						Clear.
	7 0 a. m.	29.90	58	49	49	42	50	N. W.	6	.18			Stratus	2-4	Cumulus	2-4						Cloudy.
	8 2 a. m.	29.91	58	52	52	44	47	N. W.	4	.0[illegible]			Stratus	4-4	Hidden							Cloudy.
	12 27 p. m.	29.95	60	56	56	45	35	N.	8	.32			Stratus	3-4	Cumulus	1-4	N. W.					Cloudy.
Monday, May 19	2 0 p. m.	29.97	61	58	58	48	42	N.	4	.05		112	Stratus	1-4	Cumulus	2-4	N. W.				51.2	Cloudy.
	5 2 p. m.	30.01	60	57	57	45	30	N. E.	12	.72			0	0	Cumulus	1-4	N. W.					Fair.
	9 0 p. m.	30.13	60	49	49	42	50	N.	4	.08			0	0	0	0						Clear.
	11 27 p. m.	30.16	60	45	45	40	60	0	0	0			0	0	0	0						Clear.
	7 0 a. m.	30.24	61	52	52	42	35	N. W.	4	.08			0	0	0	0						Clear.
	8 2 a. m.	30.26	63	55	55	43	28	N.	4	.08			0	0	0	0						Clear.
	12 27 p. m.	30.27	62	62	62	49	32	S. E.	4	.08			0	0	0	0						Clear.
Tuesday, May 20	2 0 p. m.	30.28	62	57	57	47	41	S. E.	8	.32		108	0	0	0	0					49.7	Clear.
	5 2 p. m.	30.28	59	53	53	46	54	S.	10	.50			0	0	0	0						Clear.
	9 0 p. m.	30.30	59	45	45	42	76	S. W.	6	.18			0	0	0	0						Clear.
	11 27 p. m.	30.34	59	44	44	42	83	S. E.	2	.02			0	0	0	0						Clear.

Meteorological record for the five days ending May 25, 1873.

	7 0 a. m.	30.35	60	48	48	44	70	S.	4	.08			0	0	0	0						Clear.
	8 2 a. m.	30.37	64	54	54	47	55	S.	4	.08			0	0	0	0						Clear.
	12 27 p. m.	30.34	62	50	50	49	43	S. E.	10	.50			0	0	Hazy							Fair.
Wednesday, May 21	2 0 p. m.	30.34	61	55	55	47	50	S.	16	1.2[illegible]		144	0	0	Hazy						49.7	Fair.
	5 2 p. m.	30.30	62	51	51	45	59	S.	12	.72			Stratus	2-4	Cumulus	2-4						Cloudy.
	9 0 p. m.	30.30	62	48	48	45	77	S.	8	.32			Stratus	2-4	Hazy							Fair.
	11 27 p. m.	30.27	60	45	45	43	84	S. W.	10	.50			Stratus	2-4	Hazy							Cloudy.
	7 0 a. m.	30.25	59	45	45	44	92	S.	4	.08			Stratus	4-4	Hidden							Light rain.
	8 2 a. m.	30.24	59	25	45	44	92	S.	6	.18			Nimbus	4-4	Hidden			2.00 a. m.		.19		Light rain.
	12 27 p. m.	30.21	59	49	49	48	93	S. W.	6	.18			Stratus	4-4	Hidden							Cloudy.
Thursday, May 22	2 0 p. m.	30.18	61	50	50	49	92	S.	8	.32		210	Stratus	4-4	Hidden						48.2	Cloudy.
	5 2 p. m.	30.15	60	50	50	48.5	89	S.	6	.18			Stratus	4-4	Hidden				11.30 a. m.	.11		Cloudy.
	9 0 p. m.	30.14	61	49	49	48	92	0	0	0			Stratus	4-4	Hidden							Cloudy.
	11 27 p. m.	30.10	61	48	48	47	92	0	0	0			Stratus	2-4	Hazy							Clearing.

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Meteorological record for the five days ending May 25, 1873—Continued.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer—daily mean.	Remarks.
	7 0 a. m.	30.04	60	53	53	52	93	S.	2	.02	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Cloudy.
	8 2 a. m.	30.05	60	55	55	54	93	0	0	0	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Threatening.
	12 27 p. m.	30.01	65	65	65	59	68	S.	12	.72	....	0	0	Cumulus..	1-4	S. W.	.....	.....	.....	.....	Fair.
Friday, May 23.....	2 2 p. m.	30.00	64	62	62	58	67	S.	16	1.28	71	0	0	Cumulus..	2-4	S. W.	.....	.....	.....	56.7	Fair.
	5 8 p. m.	29.94	64	60	60	56.5	79	S.	8	.32	....	Stratus ...	2-4	Cumulus..	2-4	W.	.....	.....	.....	.....	Cloudy.
	9 0 p. m.	29.82	61	56	56	53	80	S. W.	12	.72	....	Stratus ...	1-4	Hazy	....	.....	.....	.....	.....	.....	Fair.
	11 27 p. m.	29.84	62	55	55	54	93	S. W.	8	.32	....	Stratus ...	1-4	Hazy	....	.....	.....	.....	.....	.....	Fair.
	7 0 a. m.	29.70	63	57	57	56	93	S.	12	.72	....	Fog	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Foggy.
	8 2 a. m.	29.69	63	57	57	56	93	S.	10	.50	....	Fog.	4-4	Hidden ...	....	.....	.....	.....	.....	.....	Foggy.
	12 27 p. m.	29.58	68	71	71	64	66	S.	12	.72	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
Saturday, May 24 ..	2 0 p. m.	29.52	69	68	68	62	69	S.	12	.72	255	0	0	Cumulus..	1-4	S. W.	.....	.....	.....	65.7	Fair.
	5 2 p. m.	29.56	71	75	75	64	51	N.	2	.02	....	Stratus ...	1-4	Cumulus..	2-4	S. W.	.....	.....	.....	.....	Cloudy.
	9 0 p. m.	29.66	60	69	69	66	84	N. W.	12	.72	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	.....	Fair.
	11 27 p. m.	29.69	67	61	61	55	65	S. W.	2	.02	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	7 0 a. m.	29.80	69	66	66	58	59	N. W.	6	.18	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	8 2 a. m.	29.82	71	68	68	58	51	N. W.	8	.32	....	0	0	Cumulus..	1-4	N. W.	.....	.....	.....	.....	Fair.
	12 27 p. m.	29.87	71	73	73	59	38	E.	6	.18	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
Sunday, May 25....	2 0 p. m.	29.90	72	76	76	61	37	E.	4	.08	152	0	0	0	0	.....	.....	.....	.....	66.5	Clear.
	5 2 p. m.	29.93	72	69	69	58	47	S.	8	.32	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	9 0 p. m.	30.00	66	62	62	56	66	S. W.	8	.32	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	11 27 p. m.	30.02	66	61	61	55	65	S. W.	10	.50	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.

Meteorological record for the five days ending May 30, 1873.

	7 0 a. m.	30.11	68	63	63	57	67	W.	2	.02	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	8 2 a. m.	30.1.	71	68	68	60	60	0	0	0	..	0	0	Cirrus	1-4	W.	.....	.....	.....	.....	Fair.
	12 27 p. m.	30.10	73	72	72	61	49	S.	12	.72	....	0	0	Cirrus	2-4	W.	.....	.....	.....	.....	Fair.
Monday, May 6	2 0 p. m.	30.10	72	72	72	61	49	S.	12	.72	141	0	0	Cirro-cum	2-4	W.	.....	.....	.....	63.7	Fair.
	5 2 p. m.	30.05	67	64	63	54	51	S. W.	12	.72	....	0	0	Cumulus..	2-4	W.	.....	.....	.....	.....	Fair.
	9 0 p. m.	30.06	67	61	60	53	59	S. W.	12	.72	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	.....	Cloudy.
	11 27 p. m.	30.05	67	57	57	54	75	S. W.	12	.72	....	Stratus ...	1-4	Hidden ...	....	.....	.....	.....	.....	.....	Fair.
	7 0 a. m.	30.01	67	60	60	55	71	S. W.	12	.72	....	0	0	Cirro-cum	1-4	W.	.....	.....	.....	.....	Fair.
	8 2 a. m.	30.01	67	60	60	55	71	S. W.	12	.72	....	Stratus ...	1-4	Cirrus	1-4	N. W.	.....	.....	.....	.....	Fair.
	12 27 p. m.	30.01	70	69	69	57	54	S. W.	12	.72	....	0	0	Cirro-cum	2-4	N. W.	.....	.....	.....	67.0	Fair.

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	5	2 p. m.	29.89	66	58	58	54	75	S.	14	.98	....	Hazy	....	Cirro-cum	2-4	.....	.....	.....	.....	....	Cloudy.
	9	0 p. m.	29.87	60	56	56	52	74	S. W.	8	.32	....	Stratus	1-4	0	0	.....	.....	.....	.....	....	Fair.
	11	27 p. m.	29.74	65	54	54	52	66	S. W.	12	.72	....	Stratus	1-4	Hazy	..	.....	.....	.....	.....	....	Fair.
	7	0 a. m.	29.75	65	60	60	56	76	S. W.	12	.72	....	0	0	Cirrus	1-4	.....	.....	.....	.....	....	Fair.
	8	2 a. m.	29.78	68	67	67	61	69	S.	10	.50	....	0	0	Cirrus	1-4	.....	.....	.....	.....	....	Fair.
	12	27 p. m.	29.74	72	70	70	65	75	S.	6	.18	....	0	0	Cirrus	3-4	S. W.	.....	.....	.....	....	Cloudy.
Wednesday, May 28	2	0 p. m.	29.73	71	72	72	64	62	S.	12	.72	259	0	0	Cirro-cum	2-4	S. W.	.....	.....	.....	68.5	Fair.
	5	2 p. m.	29.73	71	71	71	68	85	S.	8	.32	....	Stratus	2-4	Cumulus	2-4	S. W.	4.20 p. m.	5.10 p. m.	.02	....	Light rain.
	9	0 p. m.	29.75	71	71	71	65	70	S. W.	6	.18	....	Stratus	1-4	Cumulus	1-4	S. W.	.....	.....	.....	....	Fair.
	11	27 p. m.	29.78	70	70	70	64	70	S. W.	8	.32	....	Stratus	2-4	Cumulus	2-4	.....	.....	.....	.....	....	Cloudy.
	7	0 a. m.	29.91	70	70	70	61	57	W.	4	.08	....	0	0	Cirrus	1-4	W.	.....	.....	.....	....	Fair.
	8	2 a. m.	29.91	73	73	73	62	50	N. W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	12	27 p. m.	29.93	75	78	78	64	42	S.	8	.32	....	0	0	Cumulus	1-4	W.	.....	.....	.....	....	Fair.
Thursday, May 29	2	0 p. m.	29.94	75	76	76	63	44	S.	8	.32	172	0	0	Cumulus	1-4	W.	.....	.....	.....	67.0	Fair.
	5	2 p. m.	29.91	71	71	71	62	57	S.	8	.32	....	0	0	Cirro-cum	1-4	W.	.....	.....	.....	....	Fair.
	9	0 p. m.	29.91	63	61	61	56	71	S.	8	.32	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	11	27 p. m.	29.88	63	62	62	57	71	S. W.	8	.32	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	7	0 a. m.	29.96	67	58	58	51	58	N.	10	.50	....	0	0	Cirro-cum	1-4	W.	.....	.....	.....	....	Fair.
	8	2 a. m.	29.97	66	58	58	50	53	N.	12	.72	....	Stratus	1-4	Cumulus	1-4	W.	.....	.....	.....	....	Fair.
	12	27 p. m.	30.01	65	60	60	45	19	N.	16	1.28	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
Friday, May 30	2	0 p. m.	30.03	67	65	65	49	22	N. W.	8	.32	203	0	0	0	0	.....	.....	.....	.....	56.7	Clear.
	5	2 p. m.	30.04	66	63	63	42	30	N.	10	.50	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	9	0 p. m.	30.18	60	52	52	42	35	N. W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	11	27 p. m.	30.23	60	48	48	41	49	0	0	0	....	0	0	0	0	.....	.....	.....	.....	....	Clear.

Meteorological record for May 31, 1873.

	7	0 a. m.	30.37	61	50	50	40	32	N. W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	8	2 a. m.	30.37	60	50	50	39	26	N.	8	.32	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	12	27 p. m.	30.34	62	61	61	45	16	S. W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
Saturday, May 31	2	0 p. m.	30.32	62	55	55	44	33	S.	12	.72	1.80	0	0	0	0	.....	.....	.....	.....	59.2	Clear.
	5	2 p. m.	30.30	63	53	53	45	48	S. W.	18	1.62	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	9	0 p. m.	30.30	60	48	48	43	63	S. W.	12	.72	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	11	27 p. m.	30.27	60	46	46	42	69	S. W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	....	Clear.

Meteorological record for the five days ending June 5, 1873.

	7	0 a. m.	30.18	61	56	56	49	57	S. W.	6	.18	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	8	2 a. m.	30.18	61	62	62	52	46	W.	8	.32	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	12	27 p. m.	30.05	71	75	75	55	19	S. W.	16	1.28	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	....	Fair.
Sunday, June 1	2	0 p. m.	30.03	71	74	74	55	21	W.	16	1.28	216	Stratus	1-4	Cirrus	1-4	W.	.....	.....	.....	....	Cloudy.
	5	2 p. m.	29.97	71	76	76	56	20	S. W.	14	.98	....	0	0	Cirrus	1-4	W.	.....	.....	.....	....	Fair.
	9	0 p. m.	29.98	69	67	67	54	37	S. W.	4	.08	....	0	0	Hazy	....	.....	.....	.....	.....	....	Fair.
	11	27 p. m.	29.98	67	65	65	53	39	S. W.	4	.08	....	0	0	Cumulus	1-4	N. W.	.....	.....	.....	....	Fair.

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Meteorological record for the five days ending June 5, 1873—Continued.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer—daily mean.	Remarks.
Monday, June 2	7 0 a. m.	30.19	64	53	53	45	48	N. E.	12	.72	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	8 2 a. m.	30.20	66	58	58	47	37	N.	8	.32	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	12 27 p. m.	30.17	66	66	66	49	19	S. W.	10	.50	....	0	0	0	0	.....	.....	.....	.....	....	Fair.
	2 0 p. m.	30.13	64	62	62	49	30	S. W.	12	.72	230	0	0	0	0	.....	.....	.....	.....	....	Clear.
	5 2 p. m.	30.09	63	58	58	49	47	S. W	8	.32	....	0	0	Cirrus.....	1-4	N. W.	.....	.....	.....	....	Fair.
	9 0 p. m.	30.19	60	57	57	47	41	N. E.	8	.32	....	0	0	Hazy.....	....	.....	.....	.....	.....	....	Fair.
	11 27 p. m.	30.18	61	55	55	46	44	N.	4	.08	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
Tuesday, June 3	7 0 a. m.	30.30	60	49	49	41	44	N. E.	8	.32	....	0	0	Cirrus.....	4-4	.....	.....	.....	.....	....	Cloudy.
	8 2 a. m.	30.32	61	51	51	42	40	N. E.	10	.50	....	Stratus ...	1-4	Cirrus.....	1-4	N. W.	.....	.....	.....	....	Fair.
	12 27 p. m.	30.26	63	60	60	47	29	S.	6	.18	....	0	0	Cirrus.....	2-4	.....	.....	.....	.....	....	Fair.
	2 0 p. m.	30.23	65	57	57	46	35	S.	8	.32	175	0	0	Cirrus.....	2-4	W.	.....	.....	.....	....	Fair.
	5 2 p. m.	30.19	63	54	54	44	37	S.	6	.32	....	0	0	Hazy.....	....	.....	.....	.....	.....	....	Fair.
	9 0 p. m.	30.15	61	49	49	44	63	S. W.	12	.72	....	0	0	Hazy.....	....	.....	.....	.....	.....	....	Fair.
	11 27 p. m.	30.12	60	47	47	42	62	S. W.	8	.32	....	0	0	Cirrus.....	1-4	N. W.	.....	.....	.....	....	Fair.
Wednesday, June 4	7 0 a. m.	29.96	58	48	48	45	78	S. W.	8	.32	....	Stratus ...	4-4	Hidden....	....	.....	.....	.....	.....	....	Cloudy.
	8 2 a. m.	29.95	58	48	48	45	78	S. W.	8	.32	....	Stratus ...	4-4	Hidden....	....	.....	.....	.....	.....	....	Cloudy.
	12 27 p. m.	29.82	59	48	48	45	78	S. W.	8	.32	....	Nimbus...	4 4	Hidden....	....	.....	.....	.....	.....	....	Light rain.
	2 0 p. m.	29.77	61	52	53	48	66	S.	12	.72	214	Stratus ...	2-4	Cirrus.....	2-4	.....	.....	.....	.....	....	Cloudy.
	5 2 p. m.	29.63	66	55	55	51	74	S.	12	.72	....	Stratus ...	1-4	Cirrus.....	1-4	N. W.	9.30 a. m.	1.00 p. m.	.02	....	Fair.
	9 0 p. m.	29.53	65	53	53	52	93	0	0	0	....	Nimbus...	4 4	Hidden....	....	.....	.....	.....	.....	....	Light rain.
	11 27 p. m.	29.48	63	53	53	52	93	N.	8	.32	....	Stratus ...	4-4	Hidden....	....	.....	9.00 p. m.	.....	.02	....	Cloudy.
Thursday, June 5	7 0 a. m.	29.58	65	53	53	50	80	N. E.	6	.18	....	0	0	Cumulus ..	1-4	.....	.....	.....	.....	....	Fair.
	8 2 a. m.	29.59	63	52	52	50	86	N. E.	6	.18	....	Stratus ...	1-4	Cumulus ..	2 4	N. W.	.....	4.00 a. m.	.11	....	Cloudy.
	12 27 p. m.	29.62	62	56	56	52	74	S. E.	8	.32	....	0	0	Cumulus ..	1-4	.....	.....	.....	.....	....	Fair.
	2 0 p. m.	29.64	63	57	57	52	69	S. E.	12	.72	164	0	0	0	0	.....	.....	.....	.....	....	Clear.
	5 2 p. m.	29.63	62	52	52	50	86	S.	8	.32	....	Stratus ...	2-4	Cumulus ..	1-4	W.	3.30 p. m.	.....	.02	....	Cloudy.
	9 0 p. m.	29.68	61	49	49	48	92	S. E.	6	.18	....	Stratus ...	4-4	Hidden....	....	.....	.....	.....	.....	....	Cloudy.
	11 27 p. m.	29.70	61	49	49	48	92	S. E.	2	.02	....	Stratus ...	4-4	Hidden....	....	.....	.....	8.00 p. m.	.05	....	Cloudy.

Meteorological record for the five days ending June 10, 1873.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer—daily mean.	Remarks.
Friday, June 6	7 0 a. m.	29.73	60	51	51	51	100	N. E.	6	.18	....	Fog.....	4-4	Hidden....	....	.....	.....	.....	.....	....	Foggy.
	8 2 a. m.	29.75	60	52	52	51	93	N. E.	4	.08	....	Fog.....	4-4	Hidden....	....	.....	.....	.....	.....	....	Dense fog.
	12 27 p. m.	29.76	64	54	54	51	86	S. E.	2	.02	....	Fog.....	4-4	Hidden....	....	.....	.....	.....	.....	....	Foggy.
	2 0 p. m.	29.77	62	54	54	51.5	79	S. E.	8	.32	110	Fog.....	4-4	Hidden....	....	.....	.....	.....	.....	....	Foggy.
	5 2 p. m.	29.[illegible]	61	53	53	[illegible]	100	[illegible]	12	[illegible]	[illegible]	Fog.....	4-4	Hidden....	....	.....	3.30 p. m.	.....	.07	....	Foggy.
	9 0 p. m.	29.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] W.	[illegible]	[illegible]	[illegible]	Nimbus ...	4 4	Hidden....	....	.....	.....	.....	.....	....	Light rain.
	11 [illegible] p. m.	29.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] E.	4	[illegible]	[illegible]	Stratus ...	4-4	Cumulus ..	1-4	N. W.	.....	.....	.45	....	Cloudy.

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Saturday, June 7...	7	0 a. m.	29.85	60	49	49	49	100	0	0	0	....	Fog	4-4	Hidden									Light rain.
	8	2 a. m.	29.86	60	50	50	50	100	N. E.	2	.02	....	Stratus	4-4	Hidden									Light rain.
	12	27 p. m.	29.85	63	62	62	57	72	S. E.	4	.08	....	Stratus	1-4	Cumulus	1-4	N. W.					.11	....	Light rain.
	2	0 p. m.	29.78	63	56	56	55	93	S. E.	4	.08	115	Nimbus	4-4	Hidden									Fair.
	5	2 p. m.	29.90	61	54	54	53	93	S. E.	1	.01	....	Stratus	3-4	Hidden									Light rain.
	9	0 p. m.	29.94	61	55	55	54	93	W.	4	.08	....	Nimbus	4-4	Hidden							.23	....	Cloudy.
	11	27 p. m.	29.95	61	55	55	53	86	N. W.	4	.08	....	Stratus	1-4	Cirrus	1-4	N. W.			9.30 p. m.		.02	....	Light rain.
	7	0 a. m.	30.09	62	56	56	53	75	N. E.	16	1.28	....	Stratus	4-4	Hidden									Clearing.
	8	2 a. m.	30.12	62	55	55	52	80	N. E.	16	1.28	....	Stratus	4-4	Hidden									Cloudy.
	12	27 p. m.	30.17	64	63	63	56	62	N. E.	12	.72	....	0	0	Cumulus	1-4	N. E.							Cloudy.
Sunday, June 8....	2	0 p. m.	30.19	65	63	63	56	62	S. E.	4	.08	211	0	0	Cumulus	1-4	N. E.							Fair.
	5	2 p. m.	30.20	64	63	63	55	56	S. E.	4	.08	....	0	0	0	0								Fair.
	9	0 p. m.	30.18	61	56	56	52	74	S. W.	4	.08	....	0	0	0	0								Clear.
	11	27 p. m.	30.18	62	52	52	49	79	S. W.	2	.02	....	0	0	0	0								Clear.
	7	0 a. m.	30.17	63	58	58	52	64	N. E.	6	.16	....	0	0	0	0								Clear.
	8	2 a. m.	30.18	66	59	59	53	64	N. E.	8	.32	....	0	0	0	0								Clear.
	12	27 p. m.	30.12	65	65	65	51	31	N. E.	8	.32	....	0	0	0	0								Clear.
Monday, June 9....	2	0 p. m.	30.09	67	68	68	53	29	N. E.	6	.16	123	0	0	0	0								Clear.
	5	2 p. m.	30.01	67	69	69	56	39	S.	8	.32	....	0	0	0	0								Clear.
	9	0 p. m.	29.98	64	60	60	52	54	N. W.	8	.32	....	0	0	Cirro-cum	1-4	N. W.							Fair.
	11	27 p. m.	29.97	62	56	56	51	68	0	0	0	....	0	0	Cirro-cum	1-4	N. W.							Fair.
	7	0 a. m.	29.97	64	59	59	52	59	0	0	0	....	0	0	0	0								Clear.
	8	2 a. m.	29.98	66	59	59	51	54	N. E.	4	.08	....	0	0	0	0								Clear.
	12	27 p. m.	29.93	66	65	65	55	49	S.	10	.50	....	0	0	Cirrus	2-4	S. W.							Fair.
Tuesday, June 10...	2	0 p. m.	29.95	66	63	63	53	47	S.	8	.32	88	0	0	Cirrus	3-4								Cloudy.
	5	2 p. m.	29.93	65	63	63	54	51	S. E.	12	.72	....	0	0	0	0								Clear.
	9	0 p. m.	29.89	61	54	54	51	80	0	0	0	....	0	0	0	0								Clear.
	11	27 p. m.	29.87	61	53	53	51	86	0	0	0	....	Stratus	1-4	Cirro-cum	2-4	N. W.							Cloudy.

Meteorological record for the five days ending June 15, 1873.

Wednesday, June 11	7	0 a. m.	29.76	62	56	56	55	93	S.	4	.08	....	Nimbus	4-4	Hidden									Heavy rain.
	8	2 a. m.	29.76	62	57	57	55	93	S. W.	8	.32	....	Stratus	4-4	Hidden				3.30 a. m.			.52	....	Light rain.
	12	27 p. m.	29.77	72	77	77	69	65	S. W.	12	.72	....	0	0	Cirro-strat	2-4	S. W.							Fair.
	2	0 p. m.	29.79	75	83	83	69	46	S. W.	12	.72	123	0	0	Cirro-cum	1-4	W.							Fair.
	5	2 p. m.	29.82	76	84	84	69	41	N. W.	8	.32	....	0	0	Cumulus	1-4	W.		8.10 a. m.			.02	....	Fair.
	9	0 p. m.	29.92	71	69	69	60	56	N. W.	2	.02	....	0	0	Cum-strat	1-4								Fair.
	11	27 p. m.	29.97	71	66	66	58	58	N. W.	2	.02	....	0	0	0	0								Clear.
Thursday, June 12.	7	0 a. m.	30.01	67	63	63	55	57	N.	4	.08	....	0	0	0	0								Clear.
	8	2 a. m.	30.03	69	66	66	54	41	N.	6	.18	....	0	0	0	0								Clear.
	12	27 p. m.	30.05	70	72	72	56	30	N. W.	8	.32	....	0	0	0	0								Clear.
	2	0 p. m.	30.07	72	74	74	57	28	N. W.	8	.32	154	0	0	0	0								Clear.
	5	2 p. m.	30.10	70	68	68	54	31	N.	10	.50	....	0	0	0	0								Clear.
	9	0 p. m.	30.17	65	58	58	51	58	N. W.	6	.18	....	0	0	0	0								Clear.
	11	27 p. m.	30.18	63	55	55	49	62	0	0	0	....	0		0	0								Clear.

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Meteorological record for the five days ending June 15, 1873—Continued.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Comm'd.	RAIN OR SNOW. Ended.	Amount of rain or melting snow.	Thermometer—daily mean.	Remarks.
																				°	
	7 0 a. m.	30.22	66	61	61	54	60	0	0	0	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	8 2 a. m.	30.24	68	64	64	54	48	N. E.	2	.02	....	0	0	Cirrus	1-4	S. W.	.....	.....	.....	....	Fair.
	12 27 p. m.	30.26	68	69	69	55	35	S. E.	8	.32	....	0	0	Cirrus	1-4	.....	.....	.....	.....	....	Fair.
Friday, June 13	2 0 p. m.	30.24	69	68	68	57	46	S.	2	.32	117	0	0	0	0	.....	.....	.....	.....	....	Clear.
	5 2 p. m.	30.19	66	65	65	55	48	S. W.	8	.32	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	9 0 p. m.	30.18	64	55	55	52	80	S. W.	6	.18	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	11 27 p. m.	30.18	64	53	53	51	86	S. W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	7 0 a. m.	30.14	64	57	57	54	81	S. E.	4	.08	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	8 2 a. m.	30.16	66	59	59	54	70	E.	4	.08	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	12 27 p. m.	30.11	65	60	60	54	65	E.	8	.32	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
Saturday, June 14..	2 0 p. m.	30.10	66	61	61	55	65	E.	4	.08	132	0	0	0	0	.....	.....	.....	.....	....	Clear.
	5 2 p. m	30.04	65	55	55	52	80	E.	12	.72	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	9 0 p. m.	30.02	63	56	56	53	80	N. E.	10	.50	....	Stratus ...	2-4	Cirrus	2-4	.....	.....	.....	.....	....	Cloudy.
	11 27 p. m.	29.97	63	55	55	52	80	N. E.	6	.18	....	Stratus ...	2-4	Cirrus	2-4	.....	.....	.....	.....	....	Cloudy.
	7 0 a. m.	29.89	63	60	60	54	65	N.	8	.32	....	Stratus ...	1-4	Cirrus	1-4	.....	.....	.....	.....	....	Fair.
	8 2 a. m.	29.90	65	60	60	54	65	N.	8	.32	....	Stratus ...	1-4	Cirrus	1-4	.....	.....	.....	.....	....	Fair.
	12 27 p. m.	29.86	69	69	69	60	56	S.	8	.32	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
Sunday, June 15	2 0 p. m.	29.85	69	69	69	60	56	S. W.	14	.98	156	0	0	0	0	.....	.....	.....	.....	....	Clear.
	5 2 p. m.	29.82	68	65	65	58	63	S.	12	.72	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	9 0 p. m.	29.80	64	60	60	57	82	0	0	0	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	11 27 p. m.	29.79	66	59	59	57	87	0	0	0	....	0	0	0	0	.....	.....	.....	.....	....	Clear.

Meteorological record for the five days ending June 20, 1873.

	7 0 a. m.	29.80	67	71	71	65	71	0	0	0	....	0	0	Hazy		.....	.....	.....	.....	....	Fair.
	8 2 a. m.	29.82	70	70	70	64	70	0	0	0	....	0	0	Hazy		.....	.....	.....	.....	....	Fair.
	12 27 p. m.	29.73	73	81	81	70	55	S. E.	4	.08	....	0	0	Cum-strat	1-4	N. W.	.....	.....	.....	....	Fair.
Monday, June 16...	2 0 p. m.	29.77	76	82	82	68	45	S. W.	8	.32	100	0	0	Cirrus	1-4	N. W.	.....	.....	.....	....	Fair.
	5 2 p. m.	29.71	70	77	77	65	66	S. W.	6	.18	....	Hazy		Cirro-cum	3-4	.....	.....	.....	.....	....	Cloudy.
	9 0 p. m.	29.70	74	73	73	68	70	W.	10	.50	....	Stratus ...	2-4	Hazy		.....	.....	.....	.....	....	Cloudy.
	11 27 p. m.	29.70	72	70	70	67	65	W.	12	.72	....	Stratus ...	2-4	Cirrus ...	2-4	.....	.....	.....	.....	....	Cloudy.
	7 0 a. m.	29.73	70	67	67	59	62	W.	8	.32	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	8 2 a. m.	29.77	71	68	68	61	69	N. W.	8	.32	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	12 27 p. m.	29.71	75	85	85	57	46	N. W.	12	.72	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
Tuesday, June 17...	2 0 p. m.	29.71	77	85	85	57	43	N. W.	12	.72	144	0	0	0	0	.....	.....	.....	.....	....	Clear.

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	5 2 p. m.	29.81	74	70	70	58	37	N. W.	8	.12	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	9 0 p. m.	29.86	69	63	63	52	43	N. W.	4	.32	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	11 27 p. m.	29.85	67	60	60	50	44	W.	8	.32	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	7 0 a. m.	29.85	67	60	60	50	44	N. W.	4	.08	....	0	0	Cirrus	1-4	N. W.	.....	.....	.....	....	Clear.
	8 2 a. m.	29.96	69	64	64	51	34	N. W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	....	Fair.
	12 27 p. m.	29.88	69	68	68	53	30	S.	12	.72	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
Wednesday, June 18	2 0 p. m.	29.85	68	67	67	54	37	S.	12	.72	141	0	0	Cirrus	1-4	.....	.....	.....	.....	....	Clear.
	5 2 p. m.	29.81	67	63	63	55	56	S.	12	.72	....	0	0	Cirrus	2-4	W.	.....	.....	.....	....	Fair.
	9 0 p. m.	29.76	65	60	60	56	76	S.	4	.08	....	Stratus ...	2-4	Hazy	....	W	.....	.....	.....	....	Fair.
	11 27 p. m.	29.72	65	61	61	57	76	S.W.	12	.72	....	Stratus ...	2-4	Cirrus	2-4	.....	.....	.....	.....	....	Cloudy.
	7 0 a. m.	29.68	67	62	62	57	72	S.W.	4	.08	....	Stratus ...	1-4	Cirrus	1-4	.....	.....	.....	.....	....	Cloudy.
	8 2 a. m.	29.69	68	65	65	59	68	S.W.	4	.08	....	Stratus ...	1-4	Cirrus	1-4	S.W.	2.00 a. m.	4.00 a. m.	.02	....	Fair.
	12 27 p. m.	29.69	74	73	73	64	59	N. E.	4	.08	....	Stratus ...	1-4	Cirrus	1-4	S.W.	.....	.....	.....	....	Fair.
Thursday, June 19	2 0 p. m.	29.71	75	70	70	63	65	N. E.	4	.08	183	Stratus ...	1-4	Cirrus	1-4	S.W.	.....	.....	.....	....	Fair.
	5 2 p. m.	29.69	72	65	65	60	73	N. E.	4	.08	....	Stratus ...	1-4	Cirrus	1-4	S.W.	.....	.....	.....	....	Fair.
	9 0 p. m.	29.70	66	54	54	52	86	E.	8	.32	....	Stratus ...	1-4	0	0	N. W.	.....	.....	.....	....	Fair.
	11 27 p. m.	29.67	66	54	54	52	86	N. E.	4	.08	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	7 0 a. m.	29.54	67	61	61	57	77	S.W.	2	.02	....	0	0	Cirro-cum.	2-4	.....	.....	.....	.....	....	Fair.
	8 2 a. m.	29.55	67	65	65	60	73	S.W.	4	.08	....	Stratus ...	1-4	Cumulus..	1-4	S.W.	.....	.....	.....	....	Fair.
	12 27 p. m.	29.52	77	85	85	63	23	S. W.	18	1.62	....	0	0	0	0	S.W.	.....	.....	.....	....	Clear.
Friday, June 20	2 0 p. m.	29.54	78	87	87	62	17	N. W.	12	.72	140	0	0	0	0	.....	.....	.....	.....	....	Clear.
	5 2 p. m.	29.54	78	83	83	62	24	W.	8	.32	....	0	0	Cumulus..	1-4	.....	.....	.....	.....	....	Fair.
	9 0 p. m.	29.68	73	72	72	55	26	N. W.	12	.72	....	0	0	0	0	N. W.	.....	.....	.....	....	Clear.
	11 27 p. m.	29.72	70	64	64	55	52	N. W.	2	.02	....	0	0	0	0	.....	.....	.....	.....	....	Clear.

Meteorological record for the five days ending June 25, 1873.

	7 0 a. m.	29.81	65	63	63	51	37	N. W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	8 2 a. m.	29.82	69	65	65	53	39	S. W.	6	.18	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	12 27 p. m.	29.77	70	68	68	55	38	S. W.	4	.08	....	Stratus ...	1-4	Cumulus ..	2-4	W.	.....	.....	.....	....	Cloudy.
Saturday, June 21	2 0 p. m.	29.76	71	70	70	56	35	N. W.	8	.32	178	Stratus ...	1-4	Cumulus ..	2-4	.....	.....	.....	.....	....	Cloudy.
	5 2 p. m.	29.83	70	67	67	56	45	N. W.	8	.32	....	0	0	Cumulus ..	1-4	N. W.	.....	.....	.....	....	Fair.
	9 0 p. m.	29.91	66	59	59	50	48	N. W.	2	.02	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	11 27 p. m.	29.93	63	54	54	49	67	N. W.	2	.02	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	7 0 a. m.	30.02	64	58	58	52	64	W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	8 2 a. m.	30.04	66	62	62	53	51	W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	12 27 p. m.	30.03	68	63	63	53	47	S.	6	.18	....	Stratus ...	1-4	Cumulus ..	2-4	N.	.....	.....	.....	....	Cloudy.
Sunday, June 22	2 0 p. m.	30.06	68	66	66	54	40	S.	10	.50	104	Stratus ...	1-4	Cumulus ..	1-4	.....	.....	.....	.....	....	Fair.
	5 2 p. m.	30.08	69	65	65	55	55	S. W.	10	.50	....	0	0	Cum-strat	1-4	.....	.....	.....	.....	....	Fair.
	9 0 p. m.	30.14	65	58	58	54	75	S. W.	6	.18	....	Stratus ...	1-4	Cirro-cum.	1-4	.....	.....	.....	.....	....	Fair.
	11 27 p. m.	30.17	62	55	55	52	80	0	0	0	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	7 0 a. m.	30.22	67	65	65	56	53	N. W.	2	.02	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	8 2 a. m.	30.24	69	68	68	58	51	0	0	0	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
	12 27 p. m.	30.22	69	72	72	57	34	S. E.	6	.18	....	0	0	0	0	.....	.....	.....	.....	....	Clear.
Monday, June 23	2 0 p. m.	30.24	71	71	71	59	44	S. W.	12	.72	121	0	0	0	0	.....	.....	.....	.....	....	Clear.
	5 2 p. m.	30.22	70	66	66	57	54	S.	12	.72	....	0	0	0	0	.....	.....	.....	.....	....	Clear, f'nt aurora.
	9 0 p. m.	30.22	66	59	59	54	70	S. W.	4	.08	....	Stratus ...	1-4	0	0	.....	.....	.....	.....	....	Fair.
	11 27 p. m.	30.20	66	57	57	53	75	S. W.	8	.32	....	0	0	0	0	.....	.....	.....	.....	....	Clear.

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Meteorological record for the five days ending June 25, 1873—Continued.

Day and date of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Comm'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer—daily mean.	Remarks.
																				°	
Tuesday, June 24	7 0 a. m.	30.19	66	60	60	55	71	S. W.	2	.02	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	8 2 a. m.	30.19	69	65	65	58	63	S.	4	.08	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	12 27 p. m.	30.19	71	72	72	60	46	S.	8	.32	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	2 0 p. m.	30.20	72	73	73	60	42	S.	8	.32	139	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	5 2 p. m.	30.20	71	72	72	60	45	S.	4	.08	....	0	0	0	0	.....	.....	.....	.....	.....	Clear, f'nt aurora.
	9 0 p. m.	30.24	67	59	59	54	70	S. W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	11 27 p. m.	30.26	66	56	56	53	80	0	0	0	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
Wednesday, June 25	7 0 a. m.	30.31	66	65	65	58	63	0	0	0	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	8 2 a. m.	30.33	69	70	70	61	57	0	0	0	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	12 27 p. m.	30.35	73	82	82	62	26	S.	6	.18	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	2 0 p. m.	30.36	74	76	76	60	34	S. W.	10	.50	84	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	5 2 p. m.	30.36	72	74	74	59	35	S.	10	.50	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	9 0 p. m.	30.36	68	63	63	54	51	S. W.	10	.50	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	11 27 p. m.	30.34	68	60	60	53	59	S. W.	7	.24	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.

Meteorological record for the five days ending June 30, 1873.

Thursday, June 26	7 0 a. m.	30.32	68	65	65	52	35	W.	2	.02	....	6	0	Cirrus	1-4	W.	.....	.....	.....	.....	Fair.
	8 2 a. m.	30.32	71	72	72	60	46	W.	4	.08	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	12 27 p. m.	30.27	77	83	83	68	43	S. E.	2	.02	....	0	0	Cirrus	1-4	.....	.....	.....	.....	.....	Fair.
	2 0 p. m.	30.25	78	82	82	62	26	S.	8	.32	151	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	5 2 p. m.	30.19	76	78	78	64	42	S.	8	.32	....	0	0	Cirrus	1-4	.....	.....	.....	.....	.....	Fair.
	9 0 p. m.	30.16	73	71	71	61	53	S. W.	6	.18	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	11 27 p. m.	30.14	72	69	69	60	56	S. W.	8	.32	....	0	0	0	0	.....	.....	.....	.....	.....	Clear, f'nt aurora.
Friday, June 27	7 0 a. m.	30.08	72	70	70	58	44	W.	4	.08	....	0	0	Cirrus	1-4	.....	.....	.....	.....	.....	Fair.
	8 2 a. m.	30.06	74	73	73	61	46	S. W.	2	.02	....	0	0	Cirrus ...	1-4	.....	.....	.....	.....	.....	Fair.
	12 27 p. m.	29.99	78	81	81	66	41	S.	8	.32	....	0	0	Cirrus ...	1-4	.....	.....	.....	.....	.....	Fair.
	2 0 p. m.	29.96	76	78	78	64	42	S.	12	.72	157	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	5 2 p. m.	29.88	75	75	75	63	47	S.	8	.32	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	9 0 p. m.	29.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	S. W.	[illegible]	.72	....	0	0	0	0	.....	.....	.....	.....	.....	Clear.
	11 [illegible] p. m.	29.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	S. W.	[illegible]	.32	....	Stratus	1-4	0	0	.....	.....	.....	.....	.....	Fair.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	S. W.	[illegible]	[illegible]	[illegible]	Stratus	1-4	Cirro-cumu	1-4	.....	.....	.....	.....	.....	Cloudy.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Stratus	1-4	Cirrus	1-4	.....	.....	.....	.....	.....	Fair.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Stratus	1-4	Cirrus	1-4	W.	.....	.....	.....	.....	Cloudy.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Stratus	1-4	Cirrus	1-4	S. W.	.....	.....	.....	.....	Cloudy.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Stratus	1-4	Cirrus	1-4	W.	.....	.....	.....	.....	Fair.

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PAPER 16.

REPORT OF METEOROLOGICAL OBSERVATIONS MADE AT MOUNT MITCHELL DURING THE MONTHS OF MAY, JUNE, JULY, AUGUST, AND PART OF SEPTEMBER, 1873.

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL-OFFICER,
DIVISION OF TELEGRAMS AND REPORTS FOR THE
BENEFIT OF COMMERCE AND AGRICULTURE,
Washington, D. C., September 23, 1873.

SIR: I have the honor to submit the following report of the special observations made on the summit of Mount Mitchell from May 11, 1873, to August 6, 1873, and both summit and base from the latter date to September 6, 1873. The barometers at both stations were carefully compared before leaving the office and also upon their return. Papers A and B, herewith, give in detail the instructions to the observers. Papers C, D, E, and F, are the journals kept at the summit, and Paper G that at the base-station. Papers H and I give the observations made at both stations, and, for purposes of comparison, those made at Knoxville, Tenn., during the same period. Knoxville was selected from the fact that its elevation is supposed to be accurately determined. The barometrical observations have been corrected for temperature and instrumental error only. The elevation of the barometer at summit above sea-level is assumed to be 6,691 feet; at base, 2,560 feet; at Knoxville, 993 feet.

Very respectfully, &c.,

H. W. HOWGATE,
Second Lieut. and Bvt. Capt. U. S. A., A. S. O. and Assistant.

CHIEF SIGNAL-OFFICER, U. S. A.,
Washington, D. C.

A.

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL-OFFICER,
DIVISION OF TELEGRAMS AND REPORTS FOR THE
BENEFIT OF COMMERCE AND AGRICULTURE,
Washington, D C., April 26, 1873.

SERGEANT: Upon arriving at the summit of Mount Mitchell, in compliance with Special Orders No. 55, of this date, you will make suitable preparations for beginning a series of observations at 6 o'clock a. m. of May 1, and continuing them, without interruption, until midnight of May 31, at the following hours daily: 1 a. m., 2 a. m., 3 a. m., 4 a. m., 5 a. m., 6 a. m., 7.14 a. m., 8 a. m., 9 a. m., 10 a. m., 11 a. m., 12 m., 1 p. m., 2 p. m., 3 p. m., 4.14 p. m., 5 p. m., 6 p. m., 7 p. m., 8 p. m., 9 p. m., 10.39 p. m., and 12 midnight.

In making these observations local time will be used, which is twenty-one (21) minutes slower than Washington time. The observations will be the same in all respects as those made at regular stations, and will be recorded in the usual manner, upon Forms 4, omitting only the reduction of the barometric observations for elevation. The records of the party will be kept, under your supervision, by Sergeant Dietz, and will be brought by you in person to this office when ordered in, unless otherwise instructed in the mean time as to their disposition. The several instruments will be properly exposed, using the portable shelter as far as practicable, and read in the following order:

1. Attached thermometer.
2. Barometer.
3. Thermometer.
4. Hygrometer.
5. Wind-vane.
6. Anemometer.
7. Rain-gauge.

All observations will be entered as made in the "Original Record" book. In addition to a full supply of necessary forms, books of record, and articles of stationery, the following instruments will be furnished you:

2 barometers, mercurial.
2 standard thermometers.
2 hygrometers.
2 anemometers.

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2 wind-vanes, small.
1 rain-gauge.
1 self-registering anemometer attachment, with battery and insulated wire.

Especial pains will be taken to secure a continuous record from the self-registering apparatus, and to preserve the record in proper condition for future use. All instruments and supplies will be taken charge of by you at this office. The former will be carried by yourself and the members of your party, and the latter must accompany you so as to reach the railroad-station nearest the mountain at the same time with the party. Upon arriving at Old Fort, the present terminus of the railroad, you will at once secure the necessary means of transportation for your party and supplies to the summit of the mountain, about thirteen miles distant. You will also ascertain from Col. D. C. Salsbury whether provisions in sufficient quantity can be obtained at or near the base of the mountain, and if not, will purchase and take with you enough to last the party five weeks. Water in abundance will be found within a few feet of the summit, and an old log-cabin on the summit can be used for shelter for the whole party. You have been selected to lead this party on account of your experience as an observer and thorough knowledge of station-duties, and it is expected that you will use your best efforts to make the expedition a successful one by the accuracy of the observations and the neatness of the records.

The utmost expedition must necessarily be used in order to reach the ground and get ready for work at the date and time ordered, and it is possible that you may be compelled to leave one man behind at the railroad-station to bring up the supplies, while the remainder of the party pushes forward to the mountain with the instruments to begin the observations.

In expending such public money as may be intrusted you for public expenses, the utmost economy must be exercised, and a carefully itemized account kept of all such expenditures.

Very respectfully,

H. W. HOWGATE,
Second Lieut. and Bvt. Capt. U. S. A., A. S. O. and Asst.

Sergt. WILLIAM E. SMITH,
Washington, D. C.

B.

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL-OFFICER,
DIVISION OF TELEGRAMS AND REPORTS FOR THE
BENEFIT OF COMMERCE AND AGRICULTURE,
Washington, D. C., *July* 26, 1873.

SERGEANT: On arriving at Mount Mitchell you will put yourself at once in communication with Sergeant Smith, in charge of the summit station, and, after a careful comparison of your barometers and time-pieces with those in use at that station, will note the difference in your journal, and then proceed to some point at or near the base of the mountain, from which the summit can be distinctly seen, and there establish a station, at which you will make observations daily at the following-named hours, (local time,) until further orders, viz: 1 a. m., 2 a. m., 3 a. m., 4 a. m., 5 a. m., 6 a. m., 7.14 a. m., 8 a. m., 9 a. m., 10 a. m., 11 a. m., 12 noon; 1 p. m., 2 p. m., 3 p. m., 4.14 p. m., 5 p. m., 6 p. m., 7 p. m., 8 p. m., 9 p. m., 10 p. m., 10.39 p. m., 12 midnight. To insure similarity in time you will twice each day (8 a. m. and 4 p. m.) compare your time with that at the summit, by signals, using for this purpose the flags furnished, and of which one set will be turned over to Sergeant Smith at the summit station. The time-keeper at the summit will be used as the standard, and yours made to correspond with it at all times. Your station at the base must be located at or as near the general level of the surrounding country as possible, and its elevation above the railroad-track ascertained, if practicable. It is not necessary that you should have your station immediately at the base of the mountain, if there is any other point from which the summit can be better seen and communicated with.

Very respectfully,

H. W. HOWGATE,
Second Lieut. and Bvt. Capt. U. S A., A. S. O. and Asst.

Sergt. D. H. SACKETT,
Washington, D. C.

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Abstract of daily journal kept on Mount Mitchell, North Carolina, during the month of May, 1873.

May 1, 1873.—Arrived at 1 a. m. at the Mountain House, which is about 4,600 feet above the level of the sea, under heavy rain, with brisk and high southeast to east winds. The guides refusing to proceed any farther under such weather, made a delay necessary. Rain continued without interruption until midnight, and wind increased to very high.

May 2.—Rainy in the early morning, with very dense fog and brisk southeast wind until 10 a. m. Wind veering to north and rain ceased, with falling temperature. Started for the peak at 1 p. m., sending ahead the guides to clear the path with axes. Arrived at Mitchell's Peak at 6.30 p. m. Toward 7 p. m. snow commenced to fall, which soon changed to sleet, with increasing wind blowing from southeast, and with very low temperature, coating the trees and rocks with a thick layer of ice.

May 3.—Commenced to build a temporary instrument-shelter, and finished it by 12 m., and began to make observations. Wind blowing brisk from the west, with low temperature and light snow. Wind veering to north at 2.25 p. m., and at 4.40 p. m. to northeast, sleeting and hailing until 6.30 p. m. Wind backing to west and northwest, with slightly increased temperature, but still being below the freezing-point. Dense fog until midnight.

May 4.—Still dense fog and fresh and brisk northwest wind, which calmed down to an absolute calm at 9 a. m. Light north and west until noon, when the fog disappeared and disclosed cirrus and cumulus clouds. A second calm at 4.14 p. m., wind veering to southeast and east. Fog throughout the remainder of the day.

May 5.—Very foggy and damp weather, with fresh east wind. The fog above this station disappeared at 7.28 a. m., disclosing cirrus and cumulus clouds, but the whole region below this station was still hidden from view by fog until 9 a. m., when a dense fog enveloped the peak; wind in the mean time veering to southwest, being light, and calming entirely. The fog nearly disappeared at 5.32, with wind backing to south and southeast. Sky covered with cumulus clouds, and after their disappearance, at 9.03, the weather was fair for a few hours, with only a light fog in the valley. A halo was visible from 9 p. m. to midnight. At midnight the weather was foggy again.

May 6.—Foggy in the earlier part of the day. Partly fair and clear at 3 a. m., and continued fair until 6 a. m., with fresh east wind. Dense fog until 9 a. m., when a light rain commenced and continued until noon, and afterward heavy rain with sleet and hail. Temperature falling and wind increasing to brisk and high. The roof of the instrument-shelter was blown down, breaking the wet-bulb of the hygrometer, and making an immediate removal of all instruments to a place of safety absolutely necessary, which place (an overhanging rock) made a reading of them impossible. The storm increased in violence, and heavy rain, mingled with snow and sleet, fell in streams, compelling the whole party to discontinue the work and descend into the valley, there being no place nearer which could afford shelter.

May 7.—Owing to the continuance of the storm an attempt to proceed to the mountain and resume work was impossible.

May 8.—The storm having broken, started up the mountain in the morning, arriving at 3 p. m.; found the rain-gauge overflowing, which indicated a fall of over 4 inches during 48 hours.

May 9.—Fair weather, but having no place to expose the instruments made no observations.

May 10.—A log-cabin being so far finished to put the instruments in their places by 6 p. m., commenced work at 7 a. m.

The instruments are placed on the north side of the building as follows:

Elevation of the cistern of the barometer, (No. 185,) 3 feet 10 inches above the ground.

Elevation of the bulb of the thermometer, (No. 145,) 4 feet 5 inches above the ground.

Elevation of the bulb of the hygrometer, (No. 181,) 4 feet 5 inches above the ground.

Elevation of the anemometer, (No. 42,) 13 feet 4 inches above the ground.

Elevation of the anemoscope, 13 feet above the ground.

Elevation of the rain-gauge, 2 feet 6 inches above the ground.

The ground being a solid bed of rocks, made it impossible to have the gauge at the same level with the ground. A thunder-storm, with heavy rain and hail, passed over this mountain at 6.30 p. m., advancing from southwest to northeast. Light rain with brisk west wind during the remainder of the day. Rain-fall ceased at 11.18 p. m.; total amount .61 inch. Dense fog at midnight.

May 11.—A dense fog, with fresh and brisk west and northwest wind, prevailed until a few minutes after 10 a. m., when the weather became partly cloudy and fair, but with still fresh and brisk northwest wind. A halo from 7.30 p. m. until 11.18 p. m. Temperature declining slowly but steadily.

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May 12.—Cloudy in the early morning, with light fog in the valley; wind continues brisk from the northwest. Dense fog from 4 a. m. until shortly after 6 a. m.; heavy frost. Fair weather and increasing temperature until 6 p. m. A distant and apparently very heavy thunder-storm west of this station, moving from northwest to southeast at 7.08. A heavy thunder-storm passed over this place, with heavy rain, from west to east, at 7.40, wind backing to west, and increasing to high. Fair weather, with light fog in the valley, from 8.32 p. m. until 10 p. m., when a light rain commenced to fall; clearing at midnight. Total amount of rain-fall during the day .45 inch. Halo from 8.45 until 10.16 p. m.

May 13.—Fair weather, with high and very high north and northwest winds, until noon; sky covered partly with cirrus clouds, the wind blowing steadily and variable from west and southwest, moderated until 8 p. m. to fresh with continuous fair weather. From shortly after 8 p. m. the force of the wind increased to high and brisk and backing to northwest. Weather cloudy.

May 14.—Partly cloudy and foggy in the morning, with brisk west wind. Light rain of but short duration at intervals during the entire day. Weather generally foggy and cloudy, and for a few hours only before midnight, fair. Wind very variable, backing to southwest, south, and southeast, and as far as due east. Total amount of rain-fall. .11 inch.

May 15.—Foggy weather with fresh southeast wind blowing steadily until 7.28 a. m., when it backed to east. Rain commenced to fall at 6.10 a. m. and continued until 4.45 p. m. The wind backed then to northwest and west and veering to north, being light and fresh but very variable. Dense fog prevailed throughout the remainder of the day. Total amount of rain-fall, .47 inch.

May 16.—Very foggy weather, with fresh variable north and northwest wind, until 7.33 a. m.; wind veering to northeast, backing again to northwest and west, and moderating to gentle during the forenoon. Generally fair weather, with light fog in the valley during the forenoon. At 9 a. m. well-defined cumulus clouds were visible far below this station. Cloudy weather with variable westerly and northerly winds during the afternoon and earlier part of the night. Fair weather, and for a short time perfectly clear weather, (at 10.39 p. m.,) until midnight.

May 17.—Fair weather, with brisk but variable northwest and west winds, in the early morning. Wind moderated to gentle and fresh during the day, and after backing in succession to southwest, south, and southeast, continued so until midnight. Fair weather with rising temperature continued until after 8 p. m. The lower atmosphere during the whole time very hazy. Cloudy until nearly midnight; fair at midnight.

May 18.—Foggy and cloudy weather, with fresh and brisk steady southeast wind, until 6.27 a. m., when the wind veered to the west and moderating in force. Cloudy weather during the forenoon and afternoon. Toward night the wind backed to south and southwest and increased to brisk. A light rain fell for a short time at 6.15 p. m. Foggy during the remainder of the day. Total amount of rain-fall, .01 inch.

May 19.—Foggy and cloudy weather, with brisk and high variable southwest wind, in the morning. The wind moderated in violence after veering to west, toward noon. Cloudy during the forenoon and afternoon, with wind backing to southwest and increasing to brisk. A distant thunder-storm passed east of this station at 1.15 p. m., moving from the southwest to the northeast. A light rain commenced to fall at 1.34 p. m., which was for 12 minutes accompanied by hail of considerable size, and continued until 2.32 p. m. Cloudy and threatening during the evening. Fair at midnight. Brilliant heat-lightning during the last three hours of the day, at first west and afterward north and northeast of this station, illuminating sometimes the entire heavens. Total amount of rain-fall, .30 inch.

May 20.—Fair weather, with high southwest wind in the earlier part of the day. Heat-lightning continued on the southwest horizon. Foggy, with fresh west winds, until 8.40 a. m. Fair and cloudy, with gentle but steady northwest wind, until noon. A phenomenon of peculiar nature occurred here during the latter part of the forenoon. The range of mountains of which Mount Mitchell is a part, divided the lower part of the atmosphere in two distinct halves. On the western side of this range the atmosphere was filled with haze, while the eastern side was foggy, and this fog was at times of considerable density. The line where fog and haze met was remarkably well defined and seemed to be unchangeable until shortly after 1 p. m., when a pretty dense fog filled the entire atmosphere. Foggy weather and light rain during the afternoon, with variable gentle and fresh easterly winds. A thunder-storm with heavy rain passed over this station at 4.20 p. m., moving from south to north. Cloudy and rainy weather, with brisk southeast wind, until midnight. Total amount of rain-fall, .56 inch.

May 21.—Foggy weather in the earlier morning, with brisk but variable southeast to east winds. Light rain commenced at 2.18 a. m., and ended at 6.45 a. m. Foggy until 9.52 a. m., when again it commenced to rain, ending at 10.24 a. m. Heavy rain from 12.20 p. m. until 1.25 p. m. Wind veering to southwest, and increasing to brisk, after being fresh and gentle, at 4.30 p. m. Dense fog filled the atmosphere, and a light, drizzling rain fell at 3.10 p. m., and continued until 9.28 p. m. Temperature rather

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low for the season, and varying but little during the entire day. Cloudy and foggy until midnight. Total amount of rain-fall, .85 inch.

May 22.—Light rain at 12.23 a. m. until 1.45 a. m., with brisk variable southwest and west winds. Foggy weather until 5.40 a. m., when it commenced to rain, and continued until 7.01 a. m. A distant thunder-storm passed south of this station at 4 a. m., wind veering to west and northwest during the forenoon, moderating to gentle and fresh, with cloudy weather, which became fair during the afternoon. At 6.50 p. m. the wind veered to northeast, and weather continued fair. Toward midnight the weather was clear. Temperature rising slowly but steadily. Total amount of rain-fall, .21 inch.

May 23.—Fair weather with variable fresh and brisk westerly winds. From 5 a. m. until 8 a. m. foggy. Light rain commenced at 8.32 a. m., and ended 8.50 a. m. Fair weather with fresh and brisk north and northwest wind until midnight. During the latter part of the forenoon well-defined cumulus clouds were at a considerable distance below this station. Brilliant heat-lightning during the evening continued until midnight, first on the eastern and southern horizon, afterward on the southern and western horizon, and, finally, on the western horizon only. Temperature rising slowly throughout the day. Total amount of rain-fall, .05 inch.

May 24.—Foggy at the beginning of the day, with brisk westerly winds. Cloudy and fair weather with fresh west and northwest winds until 3.45 p. m., from which time the weather continued fair until midnight. The wind, after veering to north and northeast, and increasing to very brisk, and moderating only a few hours before midnight, very variable during the entire day. Heat-lightning of short duration at 9 p. m. on western horizon.

May 25.—Fair weather, with brisk and fresh northeast and east winds, until 10.40 a. m., when the whole sky was covered with heavy cumulus clouds. A thunder-storm with heavy rain and hail, the size of which was fully equal and for a few minutes exceeded that of the largest kind of buckshot during the time of its fall, (20 minutes,) passed over this station at 11.40 a. m., moving from southeast toward northwest. During its passage the wind had every possible direction, veering and backing to and from every point in the compass in rapid succession until at 12.40 p. m. the wind veered to east again, by which time the storm had passed. Cloudy weather with very variable but fresh and light northeast and southeast winds during the afternoon. Distant thunder-storms in southwest and east, the former moving from northwest to southeast, the latter from northeast to southwest at 4 p. m., and at 5 p. m. thunder-storms in southwest and west direction of this station. Fair weather from 9.10 p. m. until 11.25 p. m., when a dense fog filled the atmosphere. Temperature declining. Total amount of rain-fall, .47 inch.

May 26.—Foggy weather, with steady, fresh and brisk southeast wind in the early morning, until 7.25 a. m., when a heavy rain with fresh southwest wind commenced to fall, ending at 9.10 a. m. Cloudy and foggy weather with wind backing and veering from southwest to southeast until noon, when in short succession two thunder-storms passed this station, both moving from southwest to northeast. Cloudy and foggy weather until the close of the day with fresh and brisk southerly and easterly winds. During the afternoon a distant thunder-storm passed north, and shortly afterwards another southwest of this station, both moving in a direction from southeast toward northwest. Between the hours of 3 p. m. and 4.30 p. m., heavy and well-defined cumulus clouds were in the valleys east and southwest of this station, nearly 500 feet below the summit of Mount Mitchell. Temperature slightly rising. Total amount of rain-fall, .42 inch.

May 27.—Foggy weather, with variable and brisk southwest wind, until 4.30 a. m. Fair, with brisk westerly winds, which toward noon moderated to gentle, during the entire forenoon. During this time heavy cumulus clouds were filling the valleys below this station, varying from 200 to 500 feet below. A heavy thunder-storm advancing from the southwest to the northeast passed with heavy rain and very large hail (the latter continued to fall for five minutes) over this station. The wind's force increased after the passage of this storm from gentle to high, moderating only for a brief period at midnight to brisk. Weather cloudy in the evening and fair until midnight. Temperature slightly falling. Total amount of rain-fall, .52 inch.

May 28.—Clear weather, with very brisk southwest wind, until a few minutes after 2 a. m., when the sky became overcast with cumulus clouds. Light rain soon began to fall from 3.30 a. m. until 4.45 a. m. The wind, after veering to west, and shortly afterward to northwest, moderated to fresh. Fair weather until noon. Small cumulus clouds in the valleys below this station during the greater part of the morning and forenoon. Cloudy weather, which, for only two short hours, from 8.16 p. m. to 10 p. m., was cleared to fair, prevailed until midnight. Westerly and northwesterly winds, fresh and gentle, steady in the fore part of the afternoon, and variable until midnight. A light rain-shower passed over this station from 5.40 p. m. until 5.55 p. m; temperature slightly increasing. Total amount of rain-fall, .04 inch.

May 29.—Cloudy weather with fresh northwest wind at the beginning of the day.

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At 1.55 a. m. light rain commenced to fall, and continued until 10.15 a. m. After the rain had changed from light to heavy, by 8 a. m., the wind, very variable, backed from northwest to southwest, veered to southeast, and backed again to west during the forenoon, and increased at 9 a. m. to brisk, but moderated at noon to fresh; cloudy weather, with very variable westerly winds, during the afternoon and evening. From 2.55 until 3.10 a light rain-fall. Heavy cumulus clouds in the valleys east and south of this station, whose upper limits sometimes on a level with this station, sometimes a trifle higher, and sometimes as much as 200 feet below this station. Foggy weather, with fresh but steady southwest wind, until shortly before midnight, when the fog disappeared and the weather became cloudy; temperature slightly falling. Total amount of rain-fall, 1.21 inch.

May 30.—Cloudy and foggy weather from beginning of the day until noon, with fresh and brisk westerly winds. A light rain fell from 2.25 a. m. until 2.40 a. m. Foggy and cloudy, with at first variable northerly winds, which, by 5 p. m., became a steady northeast wind until midnight. Heavy thunder-storms passed at noon north and west of this station, and in the earlier part of the afternoon northeast of this station. Heavy and afterward light rain from 3.20 p. m. until 5.20 p. m. At midnight the weather was fair; temperature falling. Total amount of rain-fall, .36 inch.

May 31.—Foggy weather, with fresh and brisk northeast wind, which, until shortly after 7 p. m., was steady and variable until midnight. Light rain from 6.40 a. m until 8.45 a. m. The dense fog which prevailed on this station throughout the entire day disappeared for only a few minutes at 1 p. m. Temperature very low for the season. Total amount of rain-fall, .17 inch.

MONTHLY SUMMARY.

Mean temperature from May 11 to May 31	49°.3
Rain-fall from May 10, 6 p. m., to May 31	6.81 in.
Number of rainy days from May 10, 6 p. m., to May 31	17
Prevailing winds from May 10, 6 p. m., to May 31	N. and W.
Number of miles traveled from May 10, 6 p. m., to May 31	6,508

The cabin is built immediately on the peak, which is a flat, rugged place, about 80 feet long and 40 wide. It stands exactly north and south; is 16 by 14 feet; has a window in each end, and the door is on the west side, the chimney on the east. The thermometer and hygrometer are in a shelter built over the north window. The barometer hangs on the east side of the window, next to which stands the self-registering attachment to the anemometer. The anemometer is placed on the north end of the roof, and a few feet from it is placed the vane. The rain-gauge is placed on the ground to the southwest of the cabin some 40 feet, and has a full exposure. Instruments all in good condition.

Respectfully submitted.

W. E. SMITH,
Observer-Sergeant Signal-Service, U. S. A.

D.

Journal abstract from June 1 to June 30, 1873.

MOUNT MITCHELL, NORTH CAROLINA.

June 1, 1873.—Foggy weather, with variable brisk east wind at the beginning of the day. Fair weather, with steady northeast wind, which, until 6 p. m., was light and gentle, and afterward became brisk, until midnight. Cloudy, foggy, and fair weather until midnight. Temperature rising. Between 6 p. m. and 8 p. m. the thermometer fell considerably, but rose slowly until midnight.

June 2.—Fair and clear weather, with variable brisk east wind at the beginning of the day. From 4 a. m. the wind moderated to fresh, and continued so until shortly after 7 p. m., with partly fair and foggy weather and increasing temperature. Toward night the fog became more dense, and light only for a brief time, at 10 p. m, with wind increasing to brisk and veering to northeast, but backing toward midnight to southeast, by which time its force moderated to fresh. Light rain commenced to fall from 11.15 p. m., lasting until midnight. Total amount of rain-fall during the day, .04 inch.

June 3.—Light rain continued until 1.43 a. m. Foggy weather, with very variable easterly winds, which, until 3 p. m., were fresh, increasing to brisk until after 9 p. m., when they moderated to fresh again, throughout the day. Heavy rain commenced at 9.15 p. m., becoming light at 10.20 p. m., but heavy again until midnight. The wind

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became, by 7 p. m., a steady east one, and continued so until the close of the day. Temperature falling. Total amount of rain-fall during the day, .53 inch.

June 4.—Rainy weather, with variable fresh and brisk south and southwest winds, continued until 5.10 a. m., the rain being partly heavy, partly light. Foggy and cloudy weather, with fresh southwest wind, which during this time was steady until noon, interrupted only for 25 minutes by light rain at 11.20 a. m. Foggy and cloudy weather, with variable fresh southerly and westerly winds, until 3.10 p. m., when a light rain fell until 4.30 p. m., during the afternoon. Fair weather from 6.40 p. m. to 8.25 p. m., with variable brisk westerly winds. Foggy until midnight. Heat-lightning on west and northwest horizon at 8 p. m. Temperature slightly increasing. Total amount of rain-fall during the day .60 inch.

June 5.—A very dense fog, with very brisk westerly winds and interrupted only once by a light rain-shower at 2.15 a. m., prevailed on this station until noon. Foggy and rainy weather until midnight. A very heavy rain, the heaviest experienced so far at this place, fell from 6.08 p. m. until 7.05 p. m., the depth of which amounted to .44 inch. Wind continued variable and brisk, westerly; temperature falling. Total amount of rain-fall during the day, .83 inch.

June 6.—Rainy weather continued, with brisk and fresh variable northwest and west winds, until 12.00 p. m.; foggy weather, with variable northwest and north wind, until midnight, by which time the wind's force had greatly moderated. A light rain-shower in the afternoon from 4.22 p. m. until 4.48 p. m.; temperature still falling. Total amount of rain-fall during the day, .48 inch.

June 7.—Fair weather, with fresh north wind, in the early morning. The wind being variable backed shortly after 2 a. m. to northwest. As soon as the wind backed, the atmosphere was filled with fog, at first somewhat pretty dense, afterward light, and lasted so until 5.20 a. m. when the weather became fair. Shortly before noon and for three hours in the afternoon the weather was cloudy, but continued fair from 3.10 p. m. until midnight. The variable north and northwest wind moderated in force greatly, being gentle from 10 p. m. and backing to south and southwest by midnight. Temperature slowly rising.

June 8.—Fair weather, with gentle but variable southeast wind, until 3.30 a. m., when the weather became clear and remained so for a little more than two hours. Generally fair until 9.20 a. m., with gentle and light southeast and east winds. By 9.20 a. m. the wind veered to south and toward noon to southwest and the sky became covered with heavy cumulus clouds moving from the west. The weather continued cloudy until 2.45. p. m., and then became foggy, remaining so until midnight. At 2.45 p. m. the wind backed suddenly to the east, increasing at the same time from fresh to brisk. The temperature which, until 2.45 p. m. was steadily but slowly increasing, fell rather rapidly until the close of the day. Light rain-shower from 8.10 p. m. to 8.40 p. m. A drizzling rain commenced at 11.25 p. m. and lasted until midnight. Total amount of rain-fall during the day, .05 inch.

June 9.—The light, drizzling rain continued until 1.41 a. m., the wind being variable, brisk east wind, moderated at 4.30 a. m. to fresh, and veered to south. Thermometer continued to fall until after 4 a. m. Weather foggy until after 5 p. m. The wind, after veering to southwest by 7 a. m. and to west at 9.45 a. m., became light. At 4 p. m. the wind veered to northwest and a calm ensued from a little before 7 p. m. until shortly after 8 p. m. Afterward a gentle northwest wind sprung up, backing shortly to west and southwest, and increasing to fresh by midnight. Cloudy weather from 5.25 p. m. until 11.40 p. m., when a pretty dense fog enveloped this peak. The temperature, which had been slowly rising during the day, fell again toward midnight. Total amount of rain-fall during the day .09 inch.

June 10.—Cloudy weather, with light and gentle variable and steady southwest wind and very slowly rising temperature, until noon. Light rain-showers from 8.05 a. m. until 8.40 a. m. and from 10.50 a. m. until 10.55 a. m. Cloudy weather, interrupted for a short time by a dense fog at 3 p. m. and fair weather from 4.40 p. m., until 7.10 p. m., prevailed throughout the remainder of the day. Light rain from 12.25 p. m. until 12.45 p. m. The wind increased shortly after noon to fresh and brisk, and after 9 p. m. to high, and remained so; a variable southwest wind until midnight. The temperature, which until 2 p. m. was rising, began to fall rapidly until 8 p. m., continuing steady, but low for the season, until the close of the day. Total amount of rain-fall during the day, .08 inch.

June 11.—The high variable southwest wind of the previous day continued until after 1 a. m., when it moderated to brisk and veered to west by 4.20 a. m. Cloudy weather, until after 3 a. m., interrupted, from 1.25 a. m. to 1.38 a. m., by light rain. Foggy from after 3 a.m. until 4.07 a. m., when a light rain commenced to fall, ending at 7.45 a.m. Foggy weather afterward, until 11.35 a. m., when again a light rain commenced; by this time the brisk west wind had backed to southwest, and moderated to fresh, remaining so until 6 p. m., but veering to west at 2.40 p. m., at the exact time the rain ceased, and, toward 5 p. m., to northwest, and backing shortly before 6 p. m. to southwest. Foggy weather, with brisk southwest and west wind until 7.35 p. m., when a

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light drizzling rain commenced to fall, not ceasing at midnight. At midnight the wind had veered to west, and moderated to fresh. Temperature low for the season. Total amount of rain-fall during the day, .61 inch.

June 12.—The drizzling rain of the previous day ended at 12.40 a. m. The weather then became foggy, and continued so until noon, with the exception of a light rain from 4.05 a. m. until 4.25 a. m., and a very light fog at 11 a. m., disclosing the sky covered with cumulus clouds. The wind continued to be a very variable westerly wind, mostly fresh, until 9.45 a. m., when it veered to northeast, and, after blowing from this point for about two hours, veered suddenly to the south, but backed by 1 p. m. again to northeast; at 4.20 p. m. the wind veered to east, and continued a fresh variable east wind until midnight. During the afternoon the weather was at first cloudy, afterward foggy; and, by 4.18 p. m., rainy, and continued so until midnight. Temperature low and slightly falling toward night. Total amount of rain-fall during the day, .55 inch.

June 13.—The weather was, after the drizzling rain ended at 12.10 a. m., foggy until 3.25 a. m., when the somewhat dense fog disappeared, leaving a very light fog only, and disclosing the sky partly covered with cumulus clouds. By 7 a. m. the fog became denser, and, hiding everything from view, remained so until the close of the day, disclosing only once, at 6 p. m., during the entire time a great part of the sky. Toward midnight the fog was very dense. The wind, during the entire day, was very variable. The fresh northeast wind, after moderating in force, backed, at 4.15 a. m., to west, and, moderating to light, veered, at 7 a. m., again to northeast, but backed, by 8 a. m., to north; by 11 a.m., to northwest, and, before noon, to west, after which time it veered to northwest, and continued, until 5.40 p. m., when, after increasing to gentle, the wind backed to southwest, and, increasing still more to fresh, backed, shortly after 9 p. m., to east, remaining so until midnight. Temperature slightly increasing.

June 14.—Foggy weather, with fresh southeast wind, from the beginning of the day until 1.35 a. m., when the wind veered to southwest and a light rain began to fall, ending at 2.40 a. m., from which time the weather continued foggy until 11.15 a. m. The fog toward noon became very dense. The variable southwest wind increasing in the early morning to brisk, but moderating by 7 a. m. to fresh, backed soon to south, and shortly afterward to southeast. At 11.15 a. m. a heavy rain commenced and continued, partly heavy, partly light rain, until 6.15 p. m. At the same time the rain commenced to fall the wind backed to east, but veered to southeast and southwest in short succession, and backed again to east by 4.30 p. m. At ten minutes before 6 p. m. the wind veered to southwest, and at 9.15 p. m. to west, remaining so. A very variable fresh and gentle wind until midnight. After the rain ceased to fall the fog cleared for a short space of time, disclosing the sky, covered with cumulus clouds, and the valleys surrounding this peak filled with heavy cumulus clouds, whose upper limits were apparently from 500 to 800 feet below this station. Partly foggy and fair weather until midnight. Temperature slightly diminishing. Total amount of rain-fall during the day, .89 inch.

June 15.—Fair and foggy weather, with brisk and variable northwest wind, until noon, by which time the wind's force had moderated to fresh. At 1 p. m. the fog gradually disappeared, disclosing the sky, covered with heavy cumulus clouds. The weather became cloudy, and continued so until nearly 7 p. m., when it cleared to fair, and continued so until midnight. The variable fresh northwest wind became at the same time a steady northwest wind, and moderated to gentle by midnight. Temperature slightly increasing.

June 16.—Generally fair weather with variable fresh westerly winds, which at 3.40 a. m veered to northeast, but backed to northwest again, after moderating to gentle and light, at 10.25 a. m. At the same time the weather became cloudy, and continued so until midnight, only once, at 6 p. m., clearing to fair for a few minutes. The wind being mostly light and gentle was a variable westerly, when at 8 p. m. it became a steady west wind, and after veering at 10.30 p. m. to northwest, a steady northwest wind, remaining so until the close of the day. The temperature during the entire day was considerably rising.

June 17.—Cloudy weather continued until 5.20 a. m., when it became fair until 9.40 a. m., by which time the sky again was covered with cumulus clouds, continuing so until 4 p. m. At 4 p. m. the cumulus clouds greatly disappeared, leaving the weather fair, but for two hours only, when the sky was entirely clouded over. At 6.50 p. m. this peak was enveloped in fog, remaining so until midnight. The steady northwest wind veered by 4 a. m. to northeast, becoming variable, and after moderating from fresh to light, veered by 9 a. m. to south, by 11 a. m. to southwest, and at noon to northwest. Shortly after noon, after the wind had veered still farther to north, and backed again to northwest, its force increased to gentle, and backing to west increased to fresh. At 7 p. m. the wind had veered to northwest, but backed at 8.35 p. m. to southwest, and after increasing to brisk remained a variable brisk southwest until midnight. A distant thunder-storm passed at 12.10 p. m. southeast of this station, moving from southwest to northeast. Heat-lightning from 8 p. m. until 10 p. m. northeast of this station, and apparently very close by. Temperature rising.

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June 18.—Foggy weather at the beginning of the day, which, after the fog had disappeared, nearly, at 1.20 a. m., became fair, and continued so until shortly after 3 a. m., when the weather became, for about 30 minutes, cloudy, and foggy afterwards. By 9.15 a. m. the fog disappeared, leaving the weather fair, but for a short time only, becoming at 2 p. m. cloudy and threatening. Light rain began to fall from 2.15 p. m. until 4.25 p. m., after which time the weather was generally foggy until midnight, with the exception of only a short time, at 6 p. m., when it was cloudy. Variable brisk and fresh westerly winds prevailed during the entire day. A heavy thunder-storm passed southwest of this station, moving from west to east, at 2 p. m. Temperature slightly falling. Total amount of rain-fall during the day, .14 inch.

June 19.—Foggy weather, with variable brisk northwest and west winds, until 10.40 a. m., when, after the weather was for not fully one hour fair, it became cloudy, and continued so until 2.15 p. m. At this time light rain began to fall, ending at 2.45 p. m. The wind had by this time moderated to fresh, and was a variable west wind. Foggy and rainy weather until midnight. The wind at 7.45 p. m. increased to brisk and high, being a variable northwest and west wind, and continued so until midnight. At 2 p. m. a heavy thunder-storm passed southwest of this station, moving from west to east. Temperature steady. Total amount of rain-fall during the day, .15 inch.

June 20.—Light rain and foggy, with brisk and high west winds, until 4.18 a. m., when the rain ended. Foggy weather, with variable brisk west wind, until 8.10 a. m., when the wind veered to northwest, but backed shortly afterward to west, and a heavy rain began to fall, ending at 1.15 p. m. The weather then became foggy and remained so until midnight, with the exception of the time from 3.15 p. m. to 3.50 p. m., when a light rain fell. The wind continued to be a variable west wind until 8.25 p. m., veering then to northwest, and, moderating slightly in force, remained so until midnight. Temperature nearly uniform throughout the entire day. Total amount of rain-fall during the day, 1.50 inch; the heaviest fall during twenty-four hours so far recorded.

June 21.—Foggy weather, with brisk variable northwest wind, prevailed until 6.25 a. m. The fog now disappeared, and the weather became fair, remaining so until 1.20 p. m., when the sky became overcast with cumulus clouds, which again cleared away at 6.45 p. m. Fair weather from 6.45 p. m. until midnight. At 8.15 a. m. the variable northwest wind veered to northeast and moderated to fresh, but backed by 10 a. m. to north, and having become a gentle wind, continued a variable northerly to westerly wind until 8.10 p. m., when, after increasing to fresh, the wind was a variable southwest wind, remaining so until midnight. Heat-lightning on southern horizon at 10 p. m. Temperature slightly rising.

June 22.—Fair weather, with fresh variable westerly winds, which by 7 a. m. moderated to light, prevailed until 9.40 a. m. followed by cloudy weather, which continued until 5.41 p. m., with the exception of the time from 2.30 p. m. to 2.55 p. m., during the passage of a thunder-storm moving from west to east, with heavy rain and a small amount of hail. Light rain began to fall at 5.41 p. m., ending at 7.14 p. m. The weather then became cloudy until 9.18 p. m., and partly fair and foggy until midnight. The light variable westerly wind veered at 12.10 p. m. to northeast, and at 2.30 p. m. to east, increasing in the mean time to gentle, and after backing to southwest at 3.25 p. m. and increasing to fresh, continued a variable southwest wind until midnight. From 2 p. m. until shortly after 4 p. m. this peak was completely surrounded by thunder-storms, of which only one passed over it, at 2.30 p. m. Heat-lightning southeast of this station at 8 p. m. Temperature steady. Total amount of rain-fall during the day, .29 inch.

June 23.—Foggy weather from the beginning of the day until 2.50 a. m., when for nearly one hour the weather became fair, and cloudy afterwards. At 5.48 a. m. the weather had cleared to fair, and continued so until after 9 a. m., when it became again cloudy and threatening at noon. A heavy rain fell from 12.04 p. m. until 12.21 p. m. Cloudy weather then prevailed until 5.35 p. m., when a thunder-storm, advancing from northeast to southwest, passed this station, with heavy and light rain from 5.35 p. m. to 7.14 p. m. Light rain again began to fall at 9 p. m., ending at 11.05 p. m., from which time until midnight the weather cleared to fair. Variable fresh westerly winds prevailed until 7 a. m., when they moderated to gentle, and to light at noon. At 2.30 p. m. the wind backed to east, and, after increasing to fresh, veered at 4 p. m. to southwest, at 4.30 p. m. to northwest, and at 9 p. m. to northeast, and, after moderating to gentle and light, continued so until midnight. Several thunder-storms passed by this station, one at 11 a. m. in the northwest, another at 1 p. m. in the east, moving from south to north. Two thunder-storms at the same time were seen, at 4.14 p. m., in the northwest and west. During the passage of the thunder-storm over this station the temperature fell very rapidly, but rose again slowly toward midnight. Heat-lightning in the northeast at 9 p. m., and in the south from 9 p. m. until midnight. Total amount of rain-fall during the day, .41 inch.

June 24.—The day began with fair weather until 5.40 a. m. Foggy, and shortly afterward cloudy, until 7.25 a. m. Fair weather then continued until noon. During the afternoon, until 6.15 p. m., the weather was cloudy and threatening; at 3 p. m.

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two distant heavy thunder-storms passed by this station. One thunder-storm was in the south, moving from southwest to northeast; and the second, at the same time, in the northeast, moving from north to south. A third distant thunder-storm passed by at 3.25 p. m., moving from west to east. At 7 p. m. the weather had cleared to fair, and by 9 p. m. this peak was shrouded in fog, which continued until midnight. The wind was, during the entire day, very variable. A gentle northeast wind veered, at 1.15 a. m., to southwest, and, after increasing to fresh, continued a variable northwest and west wind until 9.10 a. m., which by 10 a. m. had veered to west, and by 11 a. m. to northeast. From after 11 a. m. until after 4 p. m. a light northerly wind prevailed, and, after increasing to fresh, continued a north to northwest wind until midnight. Temperature increasing slightly.

June 25.—Foggy and fair weather, with variable fresh and gentle northwest to northeast winds, prevailed until 10.40 a. m.; the weather became cloudy and threatening at 4.14 p. m. At 4.20 p. m. a heavy rain began to fall, moderating by 5 p. m. to light, and ending at 5.32 p. m. Light rain again began to fall at 6.40 p. m., with wind veering to east, and continued until midnight. Temperature high and rising until 2 p. m., but declined very rapidly toward night. Total amount of rain-fall during the day, .78 inch.

June 26.—Light rain ended at 12.38 a. m. Foggy weather afterward until 3.50 a. m., from which time cloudy weather continued until 8.10 a. m. Foggy weather then prevailed until 9.11 p. m., when a light drizzling rain commenced to fall, and continued until the close of the day. Fresh, steady, and variable east wind prevailed until after 7 a. m., moderating then to light, and backing shortly afterward to northwest. By 1 p. m. the wind veered to north, and at 1.25 p. m. to northeast. After increasing to fresh the wind veered, at 4 p. m., to east, and increasing to brisk shortly after 6 p. m., but moderating to fresh again after 8 p. m., veered, at 10.30 p. m., to southeast, and continued so until midnight. Temperature falling. Total amount of rain-fall during the day, .23 inch.

June 27.—The light drizzling rain of the previous day ended at 3.25 a. m. Cloudy weather afterward until 5.15 a. m. At 5.15 a. m. a thick fog surrounded this station, and remained so until midnight, only diminishing in density during the afternoon and night. The fresh southeast wind veered by 3 a. m. to south, and shortly after to southwest, and after becoming gentle during the forenoon and light from 1 p. m. until 4.14 p. m., remained, after increasing to fresh toward night, a partly steady, partly variable southwest wind until midnight. Temperature steady, but rather low. Total amount of rain-fall during the day, .13 inch.

June 28.—Foggy weather, with fresh variable southwest wind, which at 7.49 a. m. veered to west, prevailed until 1.25 p. m. The fog then suddenly disappeared, disclosing the sky covered entirely with heavy cumulus clouds, but shortly after 3 p. m. fog again surrounded this peak and continued the remainder of the day, the time from 6.20 p. m. to 8.17 p. m. excepted, during which a light rain fell. By 1 p. m. the wind had moderated to gentle, and had become a steady west wind, but after increasing to fresh at 5.45 p. m. was variable. After 10 p. m. the wind veered to northwest and, moderating to gentle, continued so until midnight. Temperature slowly rising. Total amount of rain-fall during the day, .15 inch.

June 29.—Foggy and rainy weather throughout the day, but rainy chiefly during the afternoon and evening. The wind until 2.50 p. m. was a variable, fresh, and gentle west to southwest wind. At 2.50 p. m. the wind backed to south, and shortly before 5 p. m. to southeast, remaining so until midnight. Temperature rising slowly. Total amount of rain-fall during the day, .59 inch.

June 30.—Foggy and rainy weather, with falling temperature, continued throughout the day, the rain being partly heavy, partly light rain. Variable fresh and brisk southeast to east winds prevailed until noon, when the wind veered to southwest, and shortly afterward to west. At 3.45 p. m. the wind again veered to northwest and remained fresh and brisk until midnight. Total amount of rain-fall during to-day, .95 inch.

MONTHLY SUMMARY.

Mean temperature during June, 1873	54°.1
Highest observed temperature	70°
Lowest observed temperature	41°
Total amount of rain-fall	10.07 in.
Number of rainy days	22
The prevailing winds were from	N. W. and W.
Number of miles traveled	8,029

Instruments in use are all in good condition.

W. E. SMITH,
Observer.

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Abstract of daily journal kept on the summit of Mount Mitchell, North Carolina, from July 1 to July 31, 1873.

July 1.—Foggy weather continued, with brisk, variable westerly wind, until 9.40 a. m., when the fog disappeared and fair weather ensued, remaining so until after 2 p. m.; cloudy from 3 p. m. until 6 p. m. By 7 p. m. the weather was fair again, and clear by 10 p. m., remaining clear until midnight. By 12 m. the brisk northwesterly wind had moderated to fresh, and backed after 5 p. m. to westerly, and by 8 p. m. to southwesterly, increasing to brisk in the mean time and remaining so until midnight. Temperature rising during the day, but falling toward night.

July 2.—Clear weather until 2.10 a. m., when fair weather followed, and continued until noon; cloudy until 4.30 p. m.; fair weather then prevailed the remainder of the day. Variable, brisk southwesterly wind prevailed until 6 a. m. The wind moderated to fresh after 6 a. m. and veered to west and northwest, and becoming gentle, backed at 2.20 p. m. to southwest, and continued, after increasing to fresh and to brisk at 11.45 p. m., until midnight. Three distant thunder-storms passed by the station, one at 2 p. m., northeast of the station, moving from east to west, another at 2.40 p. m. in the east, moving from northeast to southwest, and the third at 4.05 p. m. in the northwest, moving from south to north. Temperature rising throughout the day.

July 3.—Generally fair weather with steady, high temperature, and variable northwesterly to southwesterly winds, which in the earlier part of the day were brisk and fresh, but moderated to gentle and light at noon, and increased to fresh toward night, prevailed during the day.

July 4.—Fair and foggy weather, with fresh westerly winds, until noon. The wind calmed for a brief period at noon and the weather became cloudy; generally fair weather, with variable fresh and brisk westerly winds, until midnight. Heat-lightning from 10.10 p. m. until midnight. Temperature high and rising.

July 5.—Foggy at the beginning of the day. A heavy thunder-storm, with heavy rain, passed, with northwesterly wind, increasing to brisk and rapidly-falling temperature over this station at from 1.35 a. m. to 2.20 a. m., moving from northeast to southwest. Generally foggy, with variable brisk northwesterly wind, until noon. A second thunder-storm, with heavy rain and a small amount of large hail, passed over at from 2.34 p. m. to 3.40 p. m., advancing from north to south. Light rain and foggy weather, with variable brisk northerly winds, prevailed until midnight. Total amount of rain-fall during the day, 1.07 inches. Distant thunder-storms passed by the station at 2 p. m., one in the north and the other in the northwest.

July 6.—Foggy weather, with variable brisk northwesterly wind, until 9.15 a. m.; fair the remainder of the day. The wind, after moderating to fresh, veered at 4 p. m. to north and at 5.40 p. m. to northeast, increasing in the mean time to brisk again, but moderated to light toward midnight, after becoming a steady northeast wind. Temperature rising very slowly.

July 7.—Generally fair weather, with variable light and gentle northerly winds until 6.35 p. m. Foggy weather, with wind backing to southwesterly and increasing to fresh and brisk, until midnight. Temperature rising slowly.

July 8.—Brisk southwesterly wind and dense fog, with light rain at 6 a. m., until 11 a. m., when wind veered to northwest. Cloudy at noon. Foggy weather prevailed, with brisk and fresh northwesterly wind, until midnight. Temperature falling considerably. Total amount of rain-fall during the day, .03 inch.

July 9.—Wind veered to northeast at 2 a. m., with fair weather. Heavy cumulus clouds in the valleys below from 4 a. m. to 6 a. m. At 8.20 a. m. the wind, having moderated to light, veered to southeast, and calmed entirely at 10 a. m., but soon rose again and backed to northwest, remaining so until 2.45 p. m., when it veered to northeast and east, increasing in the mean time to fresh. Generally cloudy weather from 8.20 a. m. until 7.30 p. m., when fog settled upon the mountains. Light rain from 10.25 a. m. to 10.45 p. m. Temperature rising slowly. Total amount of rain-fall during the day, .02 inch.

July 10.—Easterly winds with light rain until 1.35 a. m.; shortly after 2 a. m. the wind veered to southwest, and the fog raised about 3 a. m., but settled again at 5 a. m. and remained until 10 a. m.; heavy rain at 11.45 a. m. Wind veered during the afternoon, with light showers, from southwest to south and to west, towards midnight increasing to brisk. Distant thunder-storms at 5 p. m. in south and southwest; heat-lightning in south and southeast horizon at 10 p. m. Fair weather from 8.35 p. m. until midnight. Temperature declining slightly. Total amount of rain-fall during the day, .50 inch.

July 11.—Foggy weather with brisk and steady westerly wind, until 5.40 a. m., when the wind veered to northwest and moderated to gentle; fair weather until noon; clear weather, with light northwesterly wind, until 6.25 p. m.; a calm occurred at 5 p. m. 6.25 p. m. the wind veered to northeast, and shortly afterward to east, increasing to fresh, and continued with foggy weather until midnight. Temperature rising.

July 12.—Foggy and cloudy weather until 3.40 a. m.; fair until 6.10 a. m., when

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settled again; light rain from 8.50 until 10.10 a. m.; steady, brisk, and fresh easterly wind until 11.45 a. m., when wind veered to southeast; partly fair and cloudy weather until 6.30 p. m.; foggy with variable, brisk and fresh easterly wind until midnight. Temperature steady. Total amount of rain-fall during the day .07 inch.

July 13.—Foggy weather, with variable, fresh, and brisk southeasterly wind until 8.10 a. m.; fair until 8.40 p. m. At 12.20 p. m., the wind backed to east, and continued so until midnight. Foggy weather prevailed from 8.40 p. m. until midnight. Temperature steady.

July 14.—Foggy, with fresh southeasterly wind at the beginning of the day; at 1.35 a. m. the wind veered to southwest and the weather became fair, remaining so until 9.20 a. m.; cloudy weather with light showers until 5 p. m.; fair the remainder of the day; light and gentle variable westerly winds, with a calm at 1 p. m. until midnight. Temperature rising. Total amount of rain-fall during the day, .14 inch.

July 15.—Partly fair and foggy weather, with variable, fresh, and brisk northwesterly to northeasterly wind until 9.15 a. m.; cloudy until 4.25 p. m., when a heavy rain began to fall, with falling temperature and wind, which had somewhat moderated, increasing to brisk again. The rain continued, after moderating to light, until 7.15 p. m.; fair weather, with variable, brisk, and fresh northeasterly wind, prevailed until midnight. Total amount of rain-fall during the day, .31 inch.

July 16.—Generally fair and foggy weather, with variable, brisk, and fresh northeasterly wind, until noon, by which time the wind had moderated to light. At 12.10 p. m. the wind backed to northwest, and the weather became cloudy, remaining so until 4.20 p. m. Fair and foggy weather, with variable light and gentle northwesterly wind, and a calm at 7 p. m., until midnight. Temperature rising.

July 17.—Fair weather prevailed until 10.20 a. m.; cloudy until 6 p. m., from which time the weather continued fair until midnight; variable westerly wind until 3.40 a. m. The wind veered then to northwest, and became steady, moderating in force, and calmed at 4.14 p. m. A second calm at 7 p. m; afterward a variable southwest wind set in and continued until midnight, increasing gradually to brisk. Temperature rising.

July 18.—Fair weather at the beginning of the day, which by 2.15 a. m. became foggy and continued so until 9.40 a. m.; cloudy and rainy until 2.45 p. m; generally foggy weather then prevailed until midnight. Variable, fresh, and brisk southwesterly to northwesterly winds throughout the day. A distant thunder-storm passed by this station at 1 p. m. in the west, moving from south to north. Temperature falling. Total amount of rain-fall during the day, .38 inch.

July 19.—Generally foggy and cloudy weather, with fresh and brisk variable northwesterly and westerly winds and rapidly falling temperature, during the entire day, with the exception of the time between 5.40 a. m. to 6.10 a. m., and 5 p. m. to 5.05 p. m., when a light rain fell, and from 11.40 a. m. to 2.10 p. m., during which time the weather was fair, clearing toward midnight. Total amount of rain-fall during the day .03 inch.

July 20.—Generally cloudy weather, with fresh westerly winds and falling temperature, during the day. Foggy weather toward midnight. From 8 p. m. to 9 p. m. the wind had calmed entirely.

July 21.—Foggy and cloudy weather, with steady, fresh, and gentle west and northwest wind, until 3.40 p. m. Fair weather until midnight. At 9 p. m. the wind calmed and the sky was perfectly clear. Temperature still declining.

July 22.—Variable, gentle southerly winds and partially cloudy and fair weather until 10 a. m., when the wind backed to northeast and soon afterward to southwest; during the afternoon the wind veered to east and south, and at midnight to southwest. Generally foggy and cloudy weather until 9 p. m. and fair until midnight. Temperature rising slowly.

July 23.—Foggy and fair weather, with variable southerly to westerly winds, until 7.25 a. m., when the wind veered to northwest. Generally cloudy and fair weather, with occasional calms, until 10 p. m., when the weather became perfectly clear. Temperature rising.

July 24.—Clear weather until 3.30 a. m.; fair and foggy, with steady, gentle northwest wind until 8 a. m., when the wind veered to northeast, and finally to southwest. Cloudy and foggy weather, with occasional calms, until 9 p. m., when the weather became fair and clear by 10.39 p. m. At 10.14 p. m. the wind veered to northwest and north, and continued so until midnight. Temperature steady.

July 25.—Generally fair and cloudy weather, with variable and steady northwest to southwest winds, until noon. Foggy and rainy weather, with variable south and southwest wind, which increased to brisk by 8 p. m., until midnight. Temperature slightly falling. Total amount of rain-fall during the day, .24 inch.

July 26.—Foggy and rainy weather, with variable brisk and fresh southwest wind, until midnight. Temperature slightly rising. Total amount of rain-fall during the day, .19 inch.

July 27.—Foggy and cloudy weather until 10.30 a. m., when rain began to fall, and

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continued with but little interruption until midnight. Steady and variable southwest wind prevailed during the day. Three thunder-storms passed during the day over this station; the first with light rain at 1 p. m., advancing from north to south; the second and third with heavy rain, moving from south to north, at 6.40 p. m. and 11.55 p. m. respectively. A distant thunder-storm passed by in the east at 6 p. m., moving from south to north. Temperature steady. Total amount of rain-fall during the day, 1.[illegible] inches.

July 28.—Rainy and foggy weather until 7.45 a. m., when the weather became cloudy, remaining so until 3.39 p. m., when a heavy rain began to fall, ending at 5.32 p. m. Foggy weather during the remainder of the day. Variable, fresh, and brisk westerly winds prevailed throughout the day. Three thunder-storms passed over this station during the day; the first, with heavy rain, at 1 a. m., moving from south to north. The second and third thunder-storms followed each other in short succession from 3.39 p. m. to 5.32 p. m., moving from southeast to northwest, during the passage of which the greatest amount of rain fell so far here on record, amounting to .99 inch within 1 hour and 53 minutes. Temperature steady. Total amount of rain-fall during the day, 1.49 inches.

July 29.—Generally fair and cloudy weather, with steady northwest wind and slightly diminishing temperature, prevailed throughout the day.

July 30.—Fair and foggy weather until 7.35 a. m. Cloudy until after 10 a. m. At 11.25 a. m. light rain began to fall, and continued with little interruption until 3.45 p. m. Generally foggy and cloudy weather until 11.20 p. m. Fair at midnight. Steady northwest wind prevailed until 7.20 a. m., backing then in short succession to west, southwest, south, southeast, and finally east, until noon, and continued a variable southerly wind with increasing force until midnight. Temperature rising. Total amount of rain-fall during the day, .31 inch.

July 31.—Fair weather until 8.15 a. m. Generally foggy and cloudy weather prevailed the remainder of the day. Light rain fell from 1.15 p. m. to 2.55 p. m. Light to fresh southerly winds until 6.20 p. m., when the wind veered to northwest, and increasing to brisk continued until midnight. Temperature steady. Total amount of rain-fall during the day, .27 inch.

MONTHLY SUMMARY.

Mean temperature during July, 1873	56°.4
Highest observed temperature	72°
Lowest observed temperature	46°
Total amount of rain-fall	6.59 in.
Number of rainy days	15
The prevailing winds were from	NW. and SW.
Number of miles traveled	7,131

All instruments in use are in good condition.

W. E. SMITH.
Observer-Sergeant, Signal-Service, U. S. A.

F.

Abstract of journal for the month of August, 1873; *station, summit of Mount Mitchell, North Carolina.*

August 1.—Generally foggy and cloudy weather, with steady temperature and northwest and west winds, which until noon were variable and mostly brisk, but became steady and fresh during the remainder of the day, prevailed throughout the entire day.

August 2.—Fair weather in the earlier morning. Generally foggy and cloudy until after 8 p. m., when the weather became fair and remained so until midnight. Light rain from 6.50 a. m. to 7.45 a. m. Steady fresh northwest wind prevailed throughout the day. Temperature slightly falling. Total amount of rain-fall during the day, .[illegible] inch.

August 3.—Generally fair and cloudy weather, with rising temperature and steady fresh northwest wind, prevailed throughout the day. Light rain fell from 6.33 p. m. to 6.48 p. m., and from 7.20 p. m. to 7.40 p. m. A distant thunder-storm passed by this station, in the south, at 3 p. m., moving from southwest to northeast. Total amount of rain-fall during the day, .07 inch.

August 4.—Fair weather, with variable westerly winds, until 7.35 a. m. Generally foggy and rainy weather until midnight. Temperature slightly falling. Total amount

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of rain-fall during the day, .55 inch. Thunder-storm at 2.20 p. m., moving from west to east.

August 5.—Foggy weather, with variable easterly winds and falling temperature, throughout the entire day.

August 6.—Generally foggy weather, with variable easterly winds, until 9.15 p. m., when the wind veered to south and the weather became fair. Temperature low for the season.

August 7.—Generally foggy and cloudy weather, with variable south and west winds, throughout the day. Temperature rising.

August 8.—Fair weather prevailed until 4.20 a. m., when fog settled on the mountains and continued until midnight. Light rain fell from 9.10 a. m. until 9.40 a. m., and partly heavy and light rain from 4.25 p. m. to 5.10 p. m. Steady, fresh, and brisk northwest wind prevailed throughout the day. Temperature slowly rising. Total amount of rain-fall during the day, .43 inch.

August 9.—Generally foggy weather, with heavy rain from 2.15 p. m. until 9.15 p. m., when the weather became fair. Generally brisk and fresh, steady and variable northwest wind prevailed during the day, moderating to light by midnight. Temperature rising but slowly. Total amount of rain-fall during the day, .20 inch.

August 10.—Fair weather continued until 10.15 a. m. Cloudy until noon. At 1 p. m. light rain began to fall, increasing to heavy during the passage of a thunder-storm, which moved from east to west over this station at 2 20 p. m. Cloudy and foggy until 7.32 p. m. Partly heavy and light rain from 7.32 p. m. until 10.30 p. m., clearing toward and at midnight; steady, gentle, and fresh northwest wind until 10.40 a. m., when the wind veered to northeast and continued a variable easterly wind until midnight. Temperature steady. Distant thunder-storms in southwest from 2.30 to 3.15 p. m. Total amount of rain-fall during the day, 1.17 inch.

August 11.—Fair weather until after 8 a. m. Generally foggy and cloudy, with heavy rain from 4.25 p. m. to 4.40 p. m., until 6.20 p. m. Fair during the remainder of the day. Variable, gentle, and fresh northeast to south winds throughout the day. Temperature falling. Total amount of rain-fall during the day, .15 inch.

August 12.—Fair weather continued until 8.25 a. m. Cloudy until 7.30 p. m. Foggy the remainder of the day. Gentle and fresh variable westerly winds prevailed throughout the day. Temperature rising. During the afternoon three distant thunder-storms passed by this station, viz, at 2 p. m. in the southwest, at 5 p. m. in the northwest, and at 6 p. m. in northeast.

August 13.—Light rain in the early morning from 12.25 a. m. to 12.40 a. m. Foggy until 6.25 a. m. At 6.25 a. m. a very severe thunder-storm with heavy rain passed over this station, advancing from north to south. Heavy rain continued until 1.15 p. m. Clearing at 3 p. m., but clouding over by 4.20 p. m. Foggy from 6.48 p. m. until midnight. Temperature falling rapidly during the passage of the thunder-storm, and remaining low during the remainder of the day. Variable fresh westerly winds prevailed throughout the day. Total amount of rain-fall during the day, 1.90 inch.

August 14.—Foggy weather until noon, when the fog slowly disappeared. Sky covered with heavy cumulus clouds until after 5 p. m. Fog again then settled upon the mountains. Shortly after 10 p. m. the fog nearly disappeared, revealing a cloudless sky, and remaining so until midnight. Temperature low and falling. Variable, brisk, and fresh west and northwest winds prevailed throughout the day.

August 15.—Foggy weather, with showers of light rain from 8.30 a. m. to 8.50 a. m., and from 9.50 a. m. to 10.10 a. m., until noon, when the fog disappeared, disclosing the sky covered with heavy cumulus clouds. Fair weather prevailed from 5.20 p. m. until midnight. Temperature low, but slowly rising. Variable westerly winds throughout the day. Total amount of rain-fall during the day, .06 inch.

August 16.—Generally fair until 8.25 a. m., when the weather became cloudy, remaining so until 3.40 p. m. Foggy during the remainder of the day. Fall of light rain from 3.10 p. m. to 4.03 p. m. and from 6.15 p. m. to 6.40 p. m. Temperature rising considerably. Variable fresh westerly winds, which moderated to gentle and light from 11 a. m. until after 6 p. m. and increased then again to fresh, prevailed throughout the day. Total amount of rain-fall during the day, .04 inch.

August 17.—Foggy weather continued until 10.35 a. m., when a light rain began to fall, ending at 11.08 a. m. Generally foggy and cloudy until 1.32 p. m. Partly heavy and light rain until 3.25 p. m., clearing at 4.14 p. m., but clouding over shortly afterward. Light rain again fell from 8.35 p. m. until 9.11 p. m. Foggy the remainder of the day. Distant thunder-storms at 2 p. m. in south, at 8 p. m. in west, and at 9 p. m. in southwest. Heat-lightning around the whole horizon from 7 p. m. to 7.45 p. m. Variable fresh and gentle east to south winds until noon; variable fresh south to southwest winds until midnight. Temperature slightly rising. Total amount of rain-fall during the day, .40 inch.

August 18.—Foggy weather, with heavy rain from 1.10 a. m. to 1.35 a. m., until shortly after 8 a. m., when the weather became cloudy, remaining so until 2 p. m., with the exception of the time from 10.40 a. m. to 11.06 a. m., during which light rain fell. At

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2 p. m. light rain then began to fall, becoming heavy at 2.10 p. m. during the passage of a thunder-storm, which advanced slowly from west to east, and moderated again at 2.53 p. m. The rain ended at 5.15 p. m.; cloudy until after 8 p. m.; fair the remainder of the day. Variable fresh and brisk south and southwest winds until 2 p. m., when the wind veered to northwest and moderated to gentle, but increased to brisk and veered to north during the passage of the thunder-storm, after which the wind backed to west and remained so, moderating to light, until midnight. Temperature rising until 2 p. m., but falling rapidly until 3.10 p. m., when it rose slightly and became steady. Total amount of rain-fall during the day, .70 inch.

August 19.—Generally fair weather until 7.30 a. m.; cloudy until noon; foggy, with fall of light rain from 3.25 p. m. to 4.45 p. m., and of heavy rain from 6.38 p. m. to 7.[illegible] p. m., until midnight. Temperature slightly falling. Variable gentle and light westerly and easterly winds, with occasional calms until after 3 p. m., when the wind veered to north and northeast and increased to fresh, remaining so until midnight. Total amount of rain-fall during the day, .54 inch.

August 20.—Heavy rain at the early beginning of the day. Fair and foggy, with light rain from 10.05 a. m. to 10.20 a. m., until noon. Generally foggy, with very heavy rain, until midnight. Temperature steady. Generally variable light to fresh easterly wind, with occasional calms during the forenoon, prevailed throughout the day. Total amount of rain-fall during the day, 2.08 inches.

August 21.—Generally foggy and cloudy weather prevailed, with light rain-fall from 2.30 p. m. to 2.40 p. m., and 4.20 p. m. to 4.50 p. m., throughout the day. Variable fresh southeast to west winds, with a calm at 2 p. m., during the entire day. Temperature rising. Total amount of rain, fall during the day, .16 inch.

August 22.—Generally cloudy and fair weather until 9.10 a. m., foggy until 10.46 a. m. when light rain began to fall, increasing soon to heavy and ending at 11.36 a. m. Light rain during the greater part of the afternoon. Cloudy until 10.15 p. m. Fair until midnight. A thunder-storm, with light rain, passed over at 3 p. m. moving from northwest to southeast. Steady westerly winds until 10 a. m. Variable fresh northeast wind until midnight. Total amount of rain-fall during the day .25 inch.

August 23.—Fair weather in the morning, cloudy during the forenoon and afternoon, fair until midnight. A distant thunder-storm passed by at 2 p. m. in the northeast. Light rain from 3 p. m. to 3.25 p. m. Variable east to northwest winds throughout the day. Temperature rising. Total amount of rain-fall during the day, .03 inch.

August 24.—Generally fair weather, with rising temperature and light to fresh north to northwest winds, with occasional calms, prevailed throughout the day.

August 25.—Fair weather continued until after 3 p. m. Partly foggy and cloudy during the remainder of the day. Light rain-fall from 6.30 to 6.50 p. m. Temperature still rising. Variable westerly winds prevailed until 6.30 p. m., when a steady, brisk northwest wind set in and remained so until midnight. Total amount of rain-fall during the day, .03 inches.

August 26.—Partly foggy and cloudy weather during the entire day, with the exception of the time from 6.40 p. m. to 7.20 p. m. when a heavy rain fell. The fresh and brisk northwest wind continued steady until midnight. Temperature falling slowly. Total amount of rain-fall during the day, .11 inch.

August 27.—Foggy and cloudy weather until 8.30 a. m., when it became fair, but cloudy again shortly after 1 p. m., remaining so until midnight. Distant thunder-storms at 9 p. m. in west and north and at 3 p. m. in southeast and east. Temperature falling. Steady fresh and brisk northwest wind until after 1 p. m., when the wind backed to west and moderated to gentle, but increased to fresh by midnight.

August 28.—The weather continued foggy until 5.57 p. m., when a light rain began to fall, ending at 8.10 p. m., after which the weather became fair, but was foggy again by midnight. Variable southwest to east winds throughout the day. Temperature falling considerably. Heat-lightning on western horizon at 9 p. m. The singular phenomenon of a fog-bow of great brilliancy, caused by the moon, was observed at 10 p. m. Total amount of rain-fall during the day, .34 inch.

August 29.—Generally fair and foggy until 8 a. m.; cloudy until 4.25 p. m.; partly fair and cloudy until midnight; variable southwest to northwest wind prevailed during the day. Temperature steady. Light rain-fall from 3.15 p. m. to 3.40 p. m. Distant thunder-storm at 3 p. m. in the west. During the latter part of the afternoon the valleys were filled with heavy cumulus clouds. Total amount of rain-fall during the day, .06 inch.

August 30.—Fair weather at the beginning of the day, foggy until 10.30 a. m.; cloudy until shortly after 5 p. m.; generally fair the remainder of the day. Clear at midnight. Variable fresh to brisk westerly winds prevailed throughout the day. Temperature steady.

August 31.—Fair weather continued until 5.25 a. m., when a dense fog settled on the mountains, remaining so until shortly after 8 a. m.; cloudy until 3 p. m.; fair the remainder of the day. Variable and steady westerly winds prevailed throughout the day. Temperature rising.

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MONTHLY SUMMARY.

Mean temperature during August	55°.3
Highest observed temperature	69°.
Lowest observed temperature	43°.
Total amount of rain-fall	9.34 inches.
Number of rainy days	21
The prevailing winds were from	N.W.
Number of miles traveled	6,156

Instruments in use are all in good condition.

September 1.—Partly fair and cloudy weather, with rising temperature and light to fresh variable westerly winds, throughout the day.

September 2.—Generally cloudy until 3.35 p. m., when a heavy rain began to fall, ending at 6.20 p. m.; foggy until 9.20 p.m.; fair until midnight. Variable gentle to fresh westerly winds prevailed throughout the day. Temperature slightly falling. Total amount of rain-fall during the day, .52 inch.

September 3.—Generally foggy and cloudy weather with steady temperature and variable southeast to southwest and west winds, which shortly after 6 p. m. became brisk throughout the day. Light rain fell from 2 p. m. to 2.35 p. m. Heat-lightning at 7 p. m. on northeastern horizon. Total amount of rain-fall during the day, .03 inch.

September 4.—Partly foggy and cloudy weather, with falling temperature and brisk variable and steady southwest to northwest winds, throughout the day. Fall of light rain from 10.15 a. m. to 10.50 a. m. Total amount of rain-fall during the day, .09 inch.

September 5.—Foggy weather, with slightly rising temperature, and variable brisk southwest to northwest wind throughout the day. Light rain fell from 12.35 p. m. to 1.35 p. m., and heavy rain from 3.20 p. m. to 4.05 p. m., during which time the wind veered suddenly to northeast, but backed to northwest after the rain ended. Distant thunder-storm at 6 p. m. in the north. Total amount of rain-fall during the day, .28 inch.

W. E. SMITH,
Observer-Sergeant Signal-Service, U. S. A.

G.

Abstract of journal for the month of August, 1873.

BASE OF MOUNT MITCHELL, YANCEY COUNTY, NORTH CAROLINA.

July 29, 1873.—Arrived at "Old Fort," McDowell County, North Carolina.

July 30.—Proceeded to summit of Mount Mitchell, compared barometer with those at that station, and selected site for base station.

July 31.—Returned to "Old Fort."

August 2.—Started for "Toe River Valley," in a wagon drawn by three mules, traveled thirty miles, and laid over for the night at the base of the Blue Ridge Mountains.

August 3.—Crossed the "Blue Ridge" and arrived at site of station at 10 p. m.

August 4.—Commenced to put instruments in position. Worked hard all day.

August 5.—Everything in readiness except the "Daniells" battery for self-registering anemometer, which is not yet in order.

Comparative readings of barometers Nos. 185 *and* 1915, *taken on the summit of Mount Mitchell July* 30, 1873.

Summit barometer, (No. 185.)			Base barometer, (No. 1915.)		
Time.	Barometer.	Attached thermometer.	Time.	Barometer.	Attached thermometer.
10.40 p. m	23.87	63	10.40 p. m	23.89	63
10.50 p. m	23.88	63	10.50 p. m	23.89	64
11.00 p. m	23.86	62	11.00 p. m	23.88	63
11.10 p. m	23.86	62	11.10 p. m	23.89	63
11.20 p. m	23.87	62	11.20 p. m	23.89	62
11.30 p. m	23.87	62	11.30 p. m	23.88	62
11.40 p. m	23.86	63	11.40 p. m	23.88	63

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The difference of the readings of the two barometers cannot be noted, owing to the summit station not being furnished with the instrumental error of barometer No. 185.

August 6.—The barometer has fluctuated some during the day. An increase of pressure was shown from 6 to 9 a. m., but fell off .08 by 5 p. m., and increased slightly from that time until midnight, giving a mean of 27.517. The thermometer read 60° at 1 a. m., sank gradually until 5 a. m., when the column began to ascend and attained a maximum of 80° at 12 o'clock, (noon,) decreased during the afternoon, and finally reached a minimum at 54° at 12 p. m. Mean thermometer, 64°.2. Humidity ranged between 54 and 94 per cent. With the exception of a light easterly wind, from 8 a. m. to 2 p. m., the atmosphere has remained perfectly calm. About one-half of the sky was covered by stratus clouds at 1 a. m.; they, however, disappeared at 2 a. m., only to re-appear at 3 a. m. and remain throughout the day, varying in amount from one to three-fourths, and completely covering the sky at last observation. Cumulus and cirrus clouds were observed during the day; the latter having a great elevation and being very beautiful.

August 7.—The barometer sank unevenly from 27.48 at 1 a. m. to 27.36 at 5 p. m., and then began to rise, and continued until midnight. Daily mean barometer, 27.426. The minimum temperature, 55°, was shown at 1 a. m.; the mercury then began to ascend slowly, and after 7 a. m. accelerated its pace, and attained a maximum of 76° at 10 a. m.; decreased regularly and slowly the rest of the day. Daily mean thermometer, 66°.2. Humidity ranged from 63 to 95 per cent., being greatest during the night hours. A calm has prevailed throughout the entire day. Stratus clouds covered the sky at 1 and 2 a. m., having a motion from the south; by 3 a. m. they had partly disappeared, but soon formed again, rendering it cloudy at 4 a. m.; they broke up shortly after, and began to move off from the southwest, being invisible at 5.30 a. m. Cumulus clouds now appeared, having a slow motion toward the northeast. Cirrus clouds formed after 7 a. m., greatly elevated; several forms of the "curl clouds" were observed, the "horse-tails" and "twisted tufts" being the most numerous. Stratus clouds formed again at 9 a. m., and continued the remainder of the day, varying in amount from one to four fourths. Cumulus and cirrus clouds were seen during the day, their motion being from the west. Some very well-defined cirro-cumulus clouds were observed at 10 and 11 p. m.

August 8.—The barometer increased a little from 1 to 9 a. m., at which time the maximum reading of the day occurred, and then began to decrease, and continued slowly until 5 p. m., having then fallen .07; from that time until midnight its course was marked by fluctuations, but the last reading shows a slight gain. Mean daily barometer, 27.375. A steady temperature of 60° was shown by the thermometer, between the hours of 1 and 4 a. m.; after the latter hour the column began to ascend and attained a maximum of 77° at 1 p. m.; during the afternoon and evening the mercury sank evenly, and finally dropped to 60° again. Mean daily thermometer, 65°.2. Humidity ranged from 73 to 100 per cent. Gentle westerly winds were felt at the hours of 1, 4, and 5 p. m., the remainder of the day being perfectly calm. A fog arising from the river enveloped the station from 1 to 3 a. m., but dissipated soon thereafter. Stratus clouds covered the sky at 4 a. m. and as the morning advanced assumed a threatening appearance, which was verified by a rain, varying from light to heavy, commencing at 8.25 a. m., and continuing at intervals until 11.25 a. m.; commenced to clear up shortly after the rain ceased; the stratus clouds moved off from the west and disappeared. Large masses of white cumulus clouds now put in an appearance, moving slowly from the west, accompanied by a few silvery cirrus clouds floating at a great height in the air, and moving much slower than the cumulus clouds. Stratus clouds partly covered the sky at 2 p. m., increasing until rain descended, at 4.45 p. m., lasting only a short time. A few stratus clouds were visible during the evening, and above them about one-fourth cirrrus clouds, which at one time assumed the cirro-stratus formation. A fog commenced to rise at 10 p. m., and at 11 p. m. all was hidden. Whole amount of rain collected during the day, .05.

August 9.—The pressure of the air, as shown by the barometer, increased slightly during the morning until 9 a. m., and then began to decrease, going down regularly until 5 p. m., when it began to rise, and continued advancing the rest of the evening. Mean barometer, 27.371. A minimum temperature of 60° was shown from 1 to 3 a. m., and then the mercury commenced to rise at the rate of one degree per hour until after 6 a. m., when it rose rapidly—the 7.14 a. m. showing a rise of six degrees, and the 8 a. m. a rise of 10° since last observation. After 8 a. m. and until 3 p. m. the column fluctuated considerably between 77° and 80°, the latter number being the maximum, and was read at 11 a. m. and again at 1 p. m. At 4 p. m. the temperature began to decline, and was still falling at last observation. Mean temperature, 69°.5. The percentage of humidity was very large, being above 90 per cent. for thirteen hours of the day. The atmosphere was perfectly calm until 7.30 a. m., when a gentle wind sprung up from the northeast, and continued steady in that direction for six and a half hours, being the longest time that wind has been felt since the establishment of the station. Calmed

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again at 3 p. m., and remained so for the rest of the day. Stratus clouds, having a tardy motion from the west, covered the sky at 1 and 2 a. m. A fog then began to rise from the river and sides of the mountains, and soon hid every object from view, which continued until after 4 a. m., when it began to ascend, forming four-fourths stratus at 5 a. m., and dissipating shortly after 6 a. m. Cumulus clouds now formed and remained, looking majestic and grand, the greater part of the day. A shower of rain fell between 3.10 and 3.40 p. m. Stratus clouds were seen again at 4.30 p. m., and continued visible the rest of the evening, varying in amount from one to four-fourths, and moving slowly from the west and north. Another shower of rain fell from 7.20 to 8.30 p. m. Cirro-cumulus clouds were seen at 9 and 11 p. m., but were not well defined. A fog formed and hid everything at 12 p. m. Amount of rain collected during the day, .08. A very heavy dew has been deposited every night during the past week.

August 10.—The barometer has fluctuated continually to-day, the oscillations being comprehended between 27.38 and 27.43. Mean barometer, 27.390. The thermometer was unsteady in the early part of the morning, falling off from 63° at 1 a. m. to a minimum of 59° at 5 a. m. After 6 a. m. it began to rise, and acquired a maximum of 81° at 11 a. m. and fell 10° within the next hour, (rain falling at the time,) commenced to rise again at 1 p. m. and continued slowly until 5 p. m., when it began to sink, going down gradually to 60° at 12 p. m. Mean thermometer, 69°.1. Calm from 1 to 3 a. m., and then a light northeaster was felt, but soon died away. A light northwest breeze set in at 9 a. m., but changed to northeast at 10 a. m., and remained in that direction until after 4 p. m., when it calmed again. A gentle north wind sprung up about 7 p. m., changing to northwest at 7.30 p. m., and kept that direction until 10.20 p. m. and then grew calm. The fog reported in my journal at 12 p. m. of yesterday still continues this morning, and, if possible, grows more dense. After 4 a. m. it partly cleared off and revealed about one-fourth cirrus clouds, and soon after 6 a. m. had entirely disappeared. Cirro-cumulus clouds were then seen moving from the west. Cumulus clouds soon succeeded the compound combination, and, from the intense heat of the sun, rose up in large, rounded, beautiful masses, which covered the sky at 11.30 a. m. A thunder-storm commenced very suddenly at 11.35 a. m., and soon the rain became general and the valley filled with rain-clouds. Rain ceased at 12.30 p. m. Stratus clouds were visible during the greater part of the remainder of the day. Cumulus, cirrus, and cirro-cumulus were also seen moving from some northerly point until hidden by stratus clouds at 6.20 p. m. A light shower of rain fell from 6.38 p. m. to 6.55 p. m. Commenced again, very heavy, at 7.25 p. m., the water at times coming down in torrents. Rain ended at 9.46 p. m., and the clouds began to clear off and at 11.30 p. m. had all disappeared, but a fog commenced to form and was fast covering objects at last observation.

August 11.—The barometrical column oscillated some to-day, but the fluctuations are not such as to call for special remark. Daily mean barometer, 27.372. The thermometer was steady at 61° and 60° until after 6 a. m., when it began to increase and went up to a maximum of 76° at 11 a. m., and sank gradually to a minimum of 59° at 12 p. m. Mean daily temperature, 67°.7. The humidity to-day has been great; the hygrometer indicated 100 % at 6 a. m. Calm from 1 to 8.30 a. m.; a gentle breeze then set in from the southeast, and kept steady at that point until 3.15 p. m., and from that time until after dark there ensued a succession of calms and light east winds, but finally calmed at 9 p. m., remaining so at last observation. A dense fog hung over the station until 6 a. m., and then began to lift, and as it ascended dissipated and had entirely dissolved at 7 a. m. Stratus clouds were seen for a few hours after sunrise, and also a few cirrus and cumulus. The stratus and cirrus clouds had all disappeared at 9.30 a. m., leaving lofty cumulus clouds, varying in amount from one to two fourths, and moving for a couple of hours from the southeast, but changed direction to northwest at 1 p. m. and to south at 2 p. m. Stratus clouds now formed, and with the cumulus clouds increased until the sky was overcast, at 5 p. m. Stratus clouds continued increasing, hiding the upper clouds, and presented a threatening appearance soon after sunset. A light rain fell about dark; the amount collected being too small for measurement. Cleared up soon after the shower; the stratus clouds moved off from the southeast, revealing one-fourth cirrus clouds, progressing slowly toward the east. A perfectly clear sky was observed at 9 p. m., the moon and stars shining brightly. About one-fourth cumulus clouds formed a little before 10 p. m., but soon passed over from the south, and shortly after cirrus clouds, greatly elevated, and moving the opposite direction to that of the cumulus clouds, were seen. At midnight ill-defined cirro-cumulus clouds, having the appearance of the shorn side of a fleece of wool, were noticed moving from the southwest. At the same time a long line of fog could be seen lying close to the base of the mountains, and encircling the whole valley. A halo around the moon was first noticed at 10.45 p. m., the color being of a faint yellow or straw color, the outer edges being tinged with a pale red.

August 12.—The barometer fluctuated between 27.35 and 27.37 until 9 a. m., and then commenced to fall and sank quite rapidly to 27.28 at 3 p. m., oscillating between that height and 27.31 the rest of the day. Mean barometer, 27.324. The thermometer exhibited its minimum of 57° at 2 a. m., and increased to a maximum of 79° at 11 a. m.,

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and after fluctuating some hours in the seventies decreased to 64° at midnight. Mean thermometer, 67°.9. Humidity ranged between 61 and 94 per cent. A calm from 1 to 9 a. m. was succeeded by a light east wind, which lasted until after 3 p. m., being, however, interspersed with short calms. A dead calm took place at 4 p. m., the atmosphere remaining in this condition at last observation. A fog hid all objects, except those in close proximity, until 6 a. m., clearing off then, and at 7 a. m. a few stratus and cirrus clouds were seen, the cirrus clouds moving from the northwest. These clouds soon disappeared and gave place to cumulus clouds, having a slow motion from the northwest, and increasing until they covered the sky. Rain to the amount of .09 fell between 3.55 p. m. and 4.30 p. m.; stratus clouds varying in amount from one to four fourths were observed from that time until last observation.

August 13.—The barometer continued sinking unevenly throughout the entire day. Mean barometer, 27.223. The thermometer was steady at 64° from 1 to 6 a. m.; advanced very slowly to a maximum of 73° at 2 p. m., and sank evenly to a minimum of 55° at midnight. Mean thermometer, 64°.5. Humidity ranged between 67 and 94 per cent. Calms and light easterly and northeasterly winds succeeded each other throughout the day. Dark, gloomy-looking stratus clouds hung over the valley, and as the morning advanced grew more heavy and threatening, took up a rapid motion from the west and approached nearer the earth. Rain began at 5.05 a. m., and fell rather heavy at times, ceasing at 9.30 a. m. Another shower fell between 10.55 and 11.10 a. m. Stratus clouds cleared off after 1 p. m. and cirrus clouds put in an appearance, moving from the southwest. Stratus, cirrus, and cumulus clouds were visible until 6.30 p. m., when they disappeared, leaving a clear sky. Whole amount of rain, .94.

August 14.—The barometer decreased irregularly to-day. Mean barometer, 27.188. The temperature has been rather unsteady, reading 53° at 1 a. m.; fell to a minimum of 51° at 3 a. m. Commenced to rise at 4 a. m. and went up suddenly twelve degrees between 6 and 7 a. m., then reading 70°, which was the maximum of the day. After this it fell off to 67° and 68°, but at noon reached the maximum point again and remained there for three hours, and then decreased to 57° at 7 p. m.; it fluctuated between 57° and 59° the rest of the day. Mean temperature, 61°.2. Calm the first three hours of the morning, and then a light northeast wind set in, changing at 9 p. m. to north, in which direction it remained until 5 p. m. and then calmed, lasting two hours. For the remainder of the day there ensued a succession of calms and light north and northeast winds. Clear at 1 a. m., but a fog began to rise from the river and sides of the mountains, hiding everything at 2 a. m. At 3 a. m. it began to rise, forming as it ascended large cumulus clouds, which covered three-fourths of the sky at 4 a. m., and took up a motion from the northwest, disappearing to the southeast. Stratus formed soon after, increased to three-fourths, and were also moving from the northwest, while the upper atmosphere grew hazy. Stratus and cumulus clouds were observed during the greater portion of the day, the cumulus moving from the northwest, while the atmosphere at station was tranquil, or passing gently from the north.

Received a set of signal equipments and three original records to-day.

August 15.—The barometrical column has been in continual motion to-day, rising and falling alternately; the last observation, however, shows an increase of .08. Mean barometer, 27.187. The temperature increased steadily until 9 a. m. and then remained motionless until noon, advancing then, attaining a maximum of 72° at 2 p. m., and sinking gradually to a minimum of 53° at midnight. Mean thermometer, 64°.5. Humidity ranged between 65 and 94 per cent. A calm at 1 a. m. was succeeded by a northerly breeze at 2 a. m., which calmed at 3.30 a. m., only to be broken by a light north wind at 4.15 a. m., which kept steady at that point until 4.30 p. m., and then calmed, remaining so at 12 p. m. Two-fourths stratus and one-fourth cumulus clouds with fair weather are reported at 1 a. m., but soon became cloudy as the stratus clouds increased and covered the entire sky at 2 a. m., having a slow motion from the northwest. A break in the stratus clouds at 4 a. m. revealed about one-fourth cumulus clouds moving slowly from the north; the stratus soon closed up again and remained so until rain began to descend at 7.10 a. m., lasting until 7.38 a. m. Stratus clouds began to disappear about 10.30 a. m., and soon were lost to view; the sky filled up with cumulus clouds which were now moving from the west. All clouds cleared away about sunset, affording a remarkably clear night.

August 16.—The barometer was steady until 4.30 a. m. and then commenced to rise, and continued until 2 p. m. For the next three hours it sank .08 and advanced from that time until 12 p. m. Mean barometer, 27.248. The thermometer declined regularly from 53° at 1 a. m. to a minimum of 49° at 6 a. m., (this being the lowest reading since the establishing of the station;) for the next three hours the column went up rapidly, reading respectively 6°, 7°, and 9° higher than the observation preceding. The maximum, 75°, was shown at 11 a. m., and, after fluctuating between that point and 73° for the next two hours, declined evenly to 63° at last observation. Mean thermometer, 63°.9. A calm existed during the early morning, but was broken by a light west wind at 5 a. m.; calmed soon after, and during the remainder of the day there were alternately calms and light north winds. A fog had settled over the valley

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and hid everything at 1 a. m.; at 5 a. m. it broke up and discovered one-fourth cirro-cumulus clouds moving rapidly from the west, and increasing to two-fourths by 6 a. m., and soon after disappeared. The fog as it ascended resolved itself into cumulus clouds, which were visible the greater portion of the day, varying in amount from one- to four-fourths, and were moving from the west while the lower atmosphere grew hazy. About 4 p. m. the cumulus clouds grew heavy, closed up, sank down the mountains, close to the earth in the valley, forming a complete veil. Rain commenced at 6.55 p. m., and ceased at 7.10 p. m., the amount being too small for measurement. Stratus clouds were seen during the rest of the evening covering the entire sky.

August 17.—The barometer was almost motionless from 1 to 5 a. m. and then began to rise. At 10.30 a. m. the advance was checked, and in a short time the column began to sink, continuing until 6 p. m., and after rising for a couple of hours remained stationary until midnight. Mean barometer, 27.311. The thermometer stood at 62° at 1 a. m., but dropped to a minimum of 60° at 2 a. m., and held that point until 6 a. m.; commenced to rise rapidly, reaching 76° at 9 a. m.; fell to 74° by 9.30 a. m., and kept that height until 11 a. m., when it again ascended, reaching a maximum of 77° at noon. Between 1.40 and 2 p. m., while a shower of rain was falling, the column sank seven degrees. At 3 and 4 p. m. it read 72° and sank evenly to 61° at last observation. Mean thermometer, 67°.1. No air was stirring, except a light north and northeast wind at 8 and 9 a. m. until 11.30 a. m., when a gentle breeze was felt from the south, remaining steady in that direction until 4.30 p. m.; it died away and continued calm at 11 p. m. The clouds have been very changeable to-day. Cirrus, cirro-cumulus, and stratus clouds are reported at 1 and 2 a. m., the upper clouds moving from the west while the stratus clouds were progressing toward the southeast, and increased, hiding the upper atmosphere at 3 a. m., but opened soon after, revealing the upper clouds and disappearing at 8.30 a. m. Cirro-cumulus were visible until after 10 a. m. Cumulus formed about 8.40 a. m., and went on increasing until rain descended, between 11 a. m. and 12 m. A heavy shower fell between 1.40 and 2.45 p. m. Cumulus and cirrus clouds were observed until 6.30 p. m., and then cleared away, leaving a haze in the upper regions. A few stratus clouds were visible at 8 p. m., which grew heavy, and rained for a short time, the balance of the sky being free from clouds. Whole amount of rain collected during the day, .28.

August 18.—The barometer has been constantly in motion during the day, but the fluctuations did not exceed .04. Mean barometer, 27.311. The temperature was steady at 61° and 63° until 7.30 a. m., and then advanced evenly to a maximum of 75° at noon, and after 1 p. m. fell off evenly to a minimum of 60° at 9 and 10 p. m. Mean thermometer, 65°. The percentage of humidity has been high, ranging from 72 per cent. to 100 per cent. A continued calm was broken by a gentle north wind at 9 a. m., which changed to south-southeast and back to north again in the next few hours. Calmed about sunset and remained so at last observation. Cloudy and rainy weather has been reported all day, the showers being frequent and some of them very heavy. Total rain-fall, .94.

August 19.—To-day's barometric readings are confined between 27.29 and 27.35. Mean barometer, 27.317. The thermometer sank from 61° at 1 a. m. to a minimum of 58° at 4 a. m. and remained at that height until after 6 a. m., when it ascended evenly to a maximum of 73° at noon, and then fell off gradually to 63° at midnight. Mean thermometer, 65°.1. The calm reported at midnight of yesterday continued until broken by a light southwest wind at 2 a. m., calmed again at 5 a. m., and remained so for the balance of the day. The sky has been completely covered by clouds (principally stratus) during the entire day. Rain commenced shortly after sunset and continued at intervals throughout the evening. Amount of rain-fall, .54.

August 20.—The barometer was steady at 27.30 and 27.32 until 6 a. m., when it began to ascend, rising to 27.35 at 9 a. m. Here the advance was checked, the column began to sink, and at 1 p. m. read 27.30. Again for the next four hours no motion was perceptible. After 6 p. m. it showed a tendency to increase, and was progressing slowly at 12 p. m. Mean barometer, 27.326. The temperature varied from the minimum, 61°, to 64° between 1 and 6 a. m., and then increased steadily to a maximum of 75° at noon and fell off gradually to 64° at midnight. Mean thermometer, 67°. No wind was perceptible until 10 a. m., when a light breeze was felt, varying in direction from east to northeast and calming at 3 p. m., in which condition the atmosphere remained, with the exception of a slight motion from the east at 8 p. m., until midnight. The weather to-day has been rather unsettled. Frequent showers fell during the day, and in the evening, from 6.20 to 10.10 p. m., we had a continued light rain. Whole amount of rain-fall, .35.

August 21.—The barometer increased steadily from 1 to 9 a. m. and then decreased in the same proportion until 2 p. m., after which there was not much change until 5.30 p. m., when it began to ascend and continued so at last observation. Mean barometer, 27.358. The thermometer stood at 62° and 63° in the early morning and then went up to a maximum of 75° at 11 a. m., and fell off gradually to a second minimum of 62° at midnight. Mean thermometer, 67°.1. A calm prevailed during the day, broken occa-

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sionally by scarcely perceptible east winds. The weather to-day has been rather mixed. Stratus clouds began forming about 1 a. m. and went on increasing, covering the sky at 4 a. m. Shortly after they began to dissipate and were invisible at 7 a. m. Cumulus clouds began to form as the stratus retired, increased to three-fourths, and moved slowly from the north and northwest; suddenly they changed direction and moved from the southwest; at the same time stratus clouds appeared coming from the east, but soon altered their course and moved in the contrary direction. Soon after 10 a. m. there commenced a succession of light showers and rapid changes in the clouds. It appeared as if the clouds, becoming charged, would move up and precipitate their moisture and then clear away. At 6 p. m. cirrus clouds were observed at a great height, while below them were heavy masses of cumulus clouds. The lower atmosphere at the same time was quite hazy, and on the eastern side of the valley could be seen a long line of fog lying close to the foot of the mountains. No clouds were seen after sunset except lower clouds, they varying in amount from one to four-fourths. Whole amount of rain, .25.

August 22.—To-day's barometric readings were confined between 27.37 and 27.42. Mean barometer, 27.395. The thermometer was stationary at 63°, until after 6 a. m., and then dropped to 62° (the minimum) at 7.14 a. m., advancing rapidly from that time attaining a maximum of 78° at 11 a. m. During the afternoon the column fluctuated between 75° and 67°, and, after sunset, declined gradually to 63° at last observation. Mean temperature, 67°.5. A light variable northeast wind set in at 7.30 a. m., and continued until 3.30 p. m. Dark, heavy stratus clouds covered the entire sky during the early-morning hours. Rain began at 5.45 a. m., and ended at 6.15 a. m. Soon after the rain ceased the stratus clouds broke up, revealing one-fourth cirro cumulus clouds moving from the west. At 8 a. m. the stratus clouds had all disappeared, and two-fourths cumulus and one-fourth cirrus clouds were observed, the cumulus clouds moving rapidly from the northeast, while the cirrus were moving with the same velocity from the north. At 9 a. m. the cumulus clouds had diminished to one-fourth, the cirrus had disappeared, and two-fourths cirro-cumulus occupied their place, while one-fourth stratus clouds were seen below. Soon after this time the stratus and cirro-cumulus clouds became invisible, the cumulus clouds increased and covered the sky at noon. A rain commenced at 12.30 p. m., and continued at intervals until 5.30 p. m. Heavy stratus clouds hung over the station during the rest of the evening. Whole amount of rain, .11.

August 23.—No material change occurred in the readings of the barometer to-day. Mean barometer, 27.434. The temperature ranged at 61° and 63° until after 6 a. m. The column then began to rise and ascended to a maximum of 82° at 1 p. m. A thunder-storm now suddenly arose, and under its influence the column dropped seven degrees, reading 75° at 2 p. m. At 3 p. m. it had risen two degrees, and for the rest of the day declined evenly to a minimum of 57° at midnight. Mean thermometer, 68°.2. No wind to-day except a gentle northeast at 1 p. m., which changed to southeast at 2 p. m., and soon after calmed. The sky remained covered by stratus clouds until about 3.30 a. m., when a dense fog arose and enveloped the station, dissipating about 6.30 a. m. Cirrus and cumulus clouds were visible during the forenoon, moving from the west. At 1 p. m. the cumulus were moving from the northwest, and about one-fourth stratus clouds had formed, and were moving from the northeast. At 1.30 p. m. several loud peals of thunder were heard, and in a few minutes rain descended, lasting only a short time. The cumulus clouds changed direction to the northeast, and the stratus clouds to the southeast, the latter disappearing at 2.30 p. m., and the cumulus again moved from the northwest. At 4 p. m. they had again changed their course to northeast, and soon after no motion was perceptible. About sunset all clouds cleared away. Amount of rain-fall, .02. Worked nearly five hours to-day trying to establish communication with the summit, but could get no response.

August 24.—The barometer advanced slowly until 8.30 a. m., and then declined regularly until 6 p. m., and remained nearly stationary during the rest of the day. Mean barometer, 27.444. The temperature was steady at 55° and 56° until about sunrise, advanced rapidly after that, attaining a maximum of 81° at noon, at which height it remained until after 2 p. m., and then decreased to the minimum, 55°, at midnight. Mean thermometer, 65°.7. Calm all day. The sky remained clear until after 3 a. m., when a fog settled in the valley, covering all objects, but disappeared soon after 4 a. m. A few cumulus clouds were seen during part of the day, having a slow motion from the east and northeast. A haze was visible in the lower atmosphere during part of the afternoon, but vanished about 7 p. m., leaving a beautiful clear sky. Signal communication with the station on the summit was established to-day.

August 25.—The barometer decreased unevenly throughout the day. Mean barometer, 27.363. The thermometer read 55° at 1 a. m., but sank to a minimum of 52° between 3 and 4 a. m., and then began to rise, and went up to a maximum of 82° at 12 o'clock (noon,) and declined unevenly to 65° at 12 p. m. Mean thermometer, 68°.4. The atmosphere has been perfectly calm all day. A fog began to form about 4.30 a. m., developing the station at 5 a. m., but soon dissipated, leaving, at 6 a. m., a line of fog

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along the river and the upper atmosphere hazy. At 8.30 a. m. cumulus clouds formed, and for the first three hours had a variable direction, sometimes moving from the west, northwest, and northeast, varied in amount from one to three-fourths, and disappearing soon after 6 p. m. Stratus formed about dark, moving steadily from the northwest, rendering the weather cloudy at times, and again clear.

August 26.—The barometer fluctuated considerably to-day, but shows a decrease at last observation. Mean barometer, 27.268. The thermometer has been very unsteady. A temperature of 65° at 1 a. m. fell to a minimum of 62° at 4 a. m., and went up rapidly in the next hour, reading 71° at 5 a. m., continued to rise unevenly until 2 p. m., when it gave a maximum of 83°, that being the highest point reached during the month. After this time the column sank irregularly until 12 p. m. Mean thermometer, 71.8°. Variable gentle winds were felt during the day from southeast, east, and northeast. Stratus clouds formed about 2.30 a. m., moving from some easterly quarter until near 5 a. m., when they changed direction to the west and soon after disappeared. Cumulus clouds were seen at 5 a. m., took up a rapid motion from a point a little north of west, and did not disappear until after 7 p. m. About one-fourth cirrus clouds were visible during the day, being greatly elevated. Stratus clouds formed again at 6 p. m., increased rapidly and covered the entire sky soon after 7 p. m., assuming a threatening appearance. Peal after peal of thunder was heard about 7.20 p. m., and shortly after rain descended, lasting over a half hour. Stratus clouds were visible during the rest of the evening. Total rain-fall, .14.

August 27.—The barometer showed a tendency to fall until about 4 a. m., when it began to rise, continuing until 11 a. m., reading at that time 27.29; for the next two hours it was steady, and then dropped .04 for the 2 p. m. observation; remained at that height until after sunset, and then began to increase and continued at last observation. Mean barometer, 27.262. The thermometer stood at the minimum, 62°, at 1 a. m. varied between that height and 63° until 6 a. m.; the column then began to expand and rose to a maximum of 81° at 1 and 2 p. m. At 3 p. m. it had began to contract and continued unevenly to a temperature of 66° at midnight. Mean thermometer, 70°.9. Calm until 6.30 a. m.; a light east wind was then noticed, but it died away soon after 2 p. m., the atmosphere remaining tranquil the rest of the day. Stratus clouds increased and covered the sky at 2 a. m., but moved off shortly after 4 a. m., leaving a few cumulus and cirrus clouds, the former moving from the west and the latter from the northwest. A fog was also observed hanging over the river, but was soon dissipated by the heat of the sun. The upper clouds were visible until after 5 p. m., when they became hidden by stratus clouds which began to form shortly after 3 p. m., and grew heavy and threatening during the evening. A heavy rain began at 10.37 p. m. and ended at 11.15 p. m., being the first rain we have had for twenty-five hours. Rain-fall, .17.

August 28.—The barometer rose steadily from 27.31 at 1 a. m. to 27.41 at 10 a. m.; remained at that height until 1 p. m., and sank to 27.37 at 3 p. m.; commenced to rise again at 4.30 p. m., and advanced to 27.44 at midnight. Mean barometer, 27.381. The extreme range of the thermometer to-day was only seven degrees. The column was steady at 65° and 64° until 10 a. m., advanced one degree for the 11 a. m., and fell off for the 12 m. Attained a maximum of 69° at 2 p. m., and contracted to 63° at 7 p. m., held that point until 11 p. m., and then dropped to a minimum of 62° at 12 p. m. Mean thermometer, 65°.4. Light winds, varying from east to south, were felt for a few minutes at different times of the day. The sky has been completely covered with dark, heavy clouds all day. A few light showers fell, amounting in all to .06 inch.

August 29.—The barometer continued to ascend to-day, but its course is marked by fluctuations, and the increase is small. Mean barometer, 27.478. The thermometer read 62° at the first observation, and sank to a minimum of 61° at 2 a. m., remained at that height until after 6 a. m., and then began to rise, going up to a maximum of 72° at 11 a. m., dropped one degree at noon, and reached the maximum again at 2 p. m.; contracted after this to 62° at midnight. Mean thermometer, 65°.7. Calm until 10.30 a. m., when a just perceptible east wind was felt, but which calmed at noon. About 12.30 p. m. this wind was again felt, but changed to southeast at 2.45 p. m., and calmed at 5.30 p. m., remaining so for the rest of the day. The sky remained covered by stratus clouds until near 10 a. m., when they cleared away revealing three-fourths cumulus clouds moving from the north. They soon changed their direction to west, and shortly after 12 m. became hidden by stratus clouds, which were moving from the southeast, and partly cleared away after 8 p. m.

August 30.—The barometer stood at 27.50 until after 4 a. m. and then rose to 27.55 at 9 a. m., decreased slowly to 27.46 at 4 p. m., and showed a slight increase at 12 p. m. Mean barometer, 27.500. The thermometer was steady at 62° until after 6 a. m., advanced and attained a maximum of 77° at 11 a. m., and decreased slowly to a minimum of 56° at midnight. Mean thermometer, 66°.6. A light northwest wind was stirring at noon, but soon died away. The sky was about half-covered with stratus clouds at 1 a. m., which increased to four-fourths at next observation, and did not entirely disappear until after 8 a. m. Cumulus clouds formed after 6 a. m., having a rapid motion

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from the west, varied in amount from one to four-fourths, and disappeared after 8 p. m. The lower atmosphere grew hazy in the afternoon.

August 31.—The barometer fluctuated between 27.49 and 27.47 until 3 a. m. and then dropped to 27.44 for the 4 a. m., and oscillated between that height and 27.37 for the rest of the day. Mean barometer 27.421. The thermometer exhibited a minimum of 56° for the first four hours and then advanced regularly to a maximum of 81° at 2 and 3 p. m., declining to the minimum again at last observation. Mean thermometer, 66°.7. Calm until 10 a. m., a light northeast wind then sprung up and continued until after 4 p. m., blew for a short time from the southeast about 5 p. m., and then calmed. Stratus clouds formed and covered the sky at 2 a. m.; sank down into the valley, forming fog, at 5 a. m.; cleared off about 8 a. m., showing cirrus and cumulus clouds, the former moving from the northeast and the latter from the west. Cirrus clouds disappeared about 10.30 a. m. and the cumulus clouds about sunset.

September 1.—The barometer has been constantly in motion during the past twenty-four hours; the midnight reading shows a decrease of .03. Mean barometer, 27.346. The thermometer read 55° at the first observation; ascended to 56° at 3 a. m., and sank to a minimum of 54° at 5 a. m.; remained at this point until after 6 a. m., and then advanced rapidly to a maximum of 83° at 1 p. m., and declined unevenly to 62° at midnight. Mean thermometer, 67°.7. Calm until 10.30 a. m. A light south wind then sprung up, changing to northwest at 11.45 a. m. and died away after 1 p. m., remaining calm the rest of the day. Stratus clouds formed and covered the sky at 3 a. m., but soon broke up and disappeared. A fog formed on the river, spread over the adjacent country, and covered objects at 5 a. m., and dissipated between 7 and 8 a. m. Cumulus, cirrus, cirro-cumulus, and cirro-stratus clouds were observed at different times of the day, but all disappeared about 11.30 p. m.

September 2.—The barometer fluctuated some to-day, but shows an increase of .04 at last observation. Mean barometer, 27.342. The thermometer fell from 60° at 1 a. m. to a minimum of 56° at 3 a. m.; attained a maximum of 83° at noon, which point it held until after 2 p. m., and then declined to 61° at midnight. Mean thermometer 68°.7. No wind was perceptible until noon. A gentle east wind then set in, but soon changed to north and then calmed. Light west to southwest winds were observed at different times during the balance of the day. A haze was visible at first observation, but a fog arose and soon hid everything; cleared off during the morning, revealing cirrus clouds, varying in amount from one to three-fourths. Cumulus clouds formed about noon, having a slow motion from the west, which changed to north at 1 p. m. A light shower of rain fell between 3.25 and 4 p. m., the amount not being sufficient to measure. About 5 p. m. the cumulus clouds were again moving from the west; stratus clouds began forming and assumed a threatening appearance at 7 p. m.; at half-past seven, successive flashes of lightning were seen, accompanied by terrific thunder. This thunder-storm drew near the station, and at last appeared to be centered directly over it. Flashes of lightning now followed each other in rapid succession, their thunder causing the building to shake violently. At 7.45 p. m. the rain descended in torrents. The barometer rose rapidly, and soon the storm passed over. The clouds broke up, and part moved off, leaving the sky half covered. Fair weather continued until after 11 p. m., and then the stratus clouds increased and covered the entire sky. Whole amount of rain collected, .50.

September 3.—The barometer remained steady at 27.37 for the first two observations, sank .01 at 3 a. m., and advanced to 27.40, at 6 a. m; exhibited this reading until after 11 a. m.; declined regularly to 27.31 at 4.14 p. m., and fluctuated between this height and 27.34 the rest of the day. Mean barometer, 27.361. The thermometer decreased from 60° at the commencement of the day to a minimum of 56° at 5 and 6 a. m. The column then began to rise and went up to a maximum of 80° at noon. Kept this point for four hours and then decreased evenly to 62° at 12 p. m. Mean thermometer 68°. A light southwest wind sprung up at 9.30 a. m., veered by the south point to northeast at 11 a. m. and backed to south at noon, but soon settled steady from the southwest, in which direction it remained until after 4 p. m. and then calmed. Foggy, fair, and clear weather is alternately reported until after 8 a. m. Cumulus clouds then appeared moving slowly from the southwest, but became hidden by stratus clouds at 5 p. m. Stratus clouds broke up at 7.30 p. m., exhibiting a few cirrus and cumulus clouds, but spread and covered the sky again at midnight.

September 4.—The barometer fluctuated to-day between 27.27 and 27.37. Mean barometer 27.320. The thermometer was steady at 61° and a minimum of 60° until 7.14 a. m., increased to a maximum of 78° at 3 p. m., and declined gradually to 66° at last observation. Mean thermometer, 68°.6. A light northeast breeze set in about 1 p. m., lasted until after 5 p. m., and then changed to south; calmed at 9 p. m. Stratus clouds, varying from one to three-fourths, were visible until 4 a. m. Cumulus and cirrus clouds appeared then, but became hidden by stratus clouds at 9 a. m. A light rain fell between 10.18 and 10.55 a. m., amounting to .03. Stratus, cumulus, and cirrus clouds were observed until 8.30 p. m. when the two first disappeared, leaving a few cirrus clouds.

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September 5.—The barometer stood 27.32 at the three first observations, the pressure then increased, and the column advanced to 27.40 at 11 a. m., began to sink soon after, and fell to 27.34 at 3 p. m.; began to rise again and went up to 27.40 at midnight. Mean barometer, 27.369. The thermometer has stood high all day; read 65° at 1 a. m., advanced to 73° at 3 a. m., and sank to 70° at 5 a. m.; began to rise soon after, and attained a maximum of 81° at 2 p. m., and decreased slowly to a minimum of 61° at midnight. Mean thermometer, 72°.0. A gentle north wind set in about 1.30 a. m., increased to fresh at 3 a. m., changed to northeast by 4 a. m., and calmed at 8.30 a. m. A few southeast and northeast motions were perceptible during the afternoon; the remainder of the day was calm. Cumulus and cirrus clouds have been prevalent to-day; the cumulus clouds moving from the west and southwest and the cirrus clouds northwest and south.

INSTRUMENTS, ETC.

In placing the maximum thermometer in position, the bulb accidentally became broken, rendering it useless. The remainder of the instruments are in good condition and have worked well.

D. H. SACKETT,
Observer Signal-Service, U. S. A.

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H.—*Meteorological record for May* 11, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.53	44	41	23.49	41	41	100	W.	12	.72	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 a. m.	23.51	44	41	23.47	41	41	100	W.	12	.72	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3 0 a. m.	23.49	43	40	23.45	40	39	91	W.	16	1.28	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 0 a. m.	23.48	41	40	23.45	40	39	91	W.	16	1.28	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 a. m.	23.47	41	40	23.44	40	39	91	W.	16	1.28	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 a. m.	23.48	40	39	23.45	39	38	91	W.	16	1.28	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	23.49	40	39	23.44	40	39	91	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 a. m.	23.48	43	43	23.44	44	43.5	96	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.47	43	43	23.43	44	43	92	N. W.	14	.92	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 a. m.	23.50	55	39	23.44	40	39	91	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	11 0 a. m.	23.52	61	40	23.44	41	39	82	N. W.	12	.72	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	12 0 m ..	23.51	58	43	23.44	44	41	76	N. W.	12	.72	251	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	....	Fair.
	1 0 p. m.	23.49	53	42	23.43	43	39	67	N. W.	14	.98	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	2 0 p. m.	23.49	53	44	23.43	44	41	76	N. W.	8	.32	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	3 0 p. m.	23.46	51	43	23.40	44	40	68	N. W.	12	.72	....	Hazy	....	Cumulus	2-4	W.	.....	.....	.....	....	Fair.
	4 14 p. m.	23.46	56	43	23.39	44	39	60	N. W.	12	.72	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	....	Fair.
	5 0 p. m.	23.46	52	42	23.40	42.5	38	62	N. W.	16	1.28	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	....	Fair.
	6 0 p. m.	23.44	48	41	23.39	42	36	50	N. W.	16	1.28	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	....	Fair.
	7 0 p. m.	23.44	45	36	23.40	36	33	70	N. W.	16	1.28	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	....	Fair.
	8 0 p. m.	23.46	47	33	23.41	34	31	71	N. W.	14	.98	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	....	Fair; halo from 7.30 to 11.18.
	9 0 p. m.	23.45	41	33	23.42	34	31	71	N. W.	20	2.00	....	Hazy	....	Cumulus	2-4	W.	.....	.....	.....	....	Fair.
	10 0 p. m.	23.46	35	34	23.44	34	31	71	N. W.	18	1.62	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	....	Fair.
	10 39 p. m.	23.46	34	33	23.44	33	31	80	N. W.	12	.72	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	....	Fair.
	12 0 p. m.	23.46	33	32	23.44	32	31	90	N. W.	14	.98	....	0	0	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
Knoxville, Tenn .	7 0 a. m.	29.07	66	60	28.963	59	52	59	N.	8	.32	....	0	0	Cumulus	4-4	N. W.	.....	.....	.....	....	Cloudy.
	7 7 a. m.	29.07	66	60	28.963	59	52	59	N.	8	.32	....	0	0	Cumulus	4-4	N. W.	.....	.....	.....	....	Cloudy.
	11 33 a. m.	29.07	69	67	28.955	66	52	31	N.	13	.84	222	0	0	Cumulus	1-4	N. W.	.....	.....	.....	....	Clear.
	2 0 p. m.	29.04	71	67	28.930	66	51	28	N. W.	15	1.12	....	0	0	Cumulus	3-4	W.	.....	.....	.....	....	Fair.
	4 7 p. m.	29.02	71	71	28.900	70	53	23	N. W.	14	.98	....	0	0	Cumulus	2-4	N. W.	.....	.....	.....	....	Fair.
	9 0 p. m.	29.07	67	59	28.960	58	49	48	W.	8	.32	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	10 39 p. m.	29.07	60	57	28.955	56	49	56	W.	6	.18	....	0	0	0	0	0	.....	.....	.....	....	Clear.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.45	33	32	23.43	32	31	90	N. W.	16	1.28	....	Fog in the valley.	....	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	2 0 a. m.	23.45	33	32	23.43	32	31	90	N. W.	16	1.28	....	Light fog	....	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	3 0 a. m.	23.44	33	32	23.42	32	31	90	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23.44	33	32	23.42	32	31	90	N. W.	16	1.28	....	Dense fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23.45	32	31	23.43	31	30	89	N. W.	16	1.28	....	Dense fog	....	Hidden	....	.....	.....	.....	....	....	Foggy, frost.
	6 0 a. m.	23.46	32	31	23.44	31	30	89	N. W.	14	.98	....	Dense fog	....	Hidden	....	.....	.....	.....	....	....	Foggy, frost.
	7 14 a. m.	23.51	46	34	23.46	35	33	80	N. W.	20	2.00	....	Hazy	....	Cumulus	1-8	N. W.	.....	.....	....	....	Fair.
	8 0 a. m.	23.53	47	36	23.48	37	33	62	N. W.	18	1.62	....	Hazy	....	Cumulus	1-8	N. W.	.....	.....	....	....	Fair.
	9 0 a. m.	23.54	43	39	23.50	39	35	64	N. W.	18	1.62	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	....	....	Fair.
	10 0 a. m.	23.55	43	41	23.51	41	37	65	N. W.	14	.98	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	11 0 a. m.	23.58	53	42	23.52	43	38	59	N. W.	10	.50	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	12 0 m.	23.57	46	45	23.52	46	40	54	N. W.	8	.32	354	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	1 0 p. m.	23.58	46	46	23.53	46	40	54	N. W.	12	.72	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Fair.
	2 0 p. m.	23.58	48	48	23.53	48	41	49	N. W.	16	1.28	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	3 0 p. m.	23.58	48	49	23.53	50	42	45	N. W.	16	1.28	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	4 14 p. m.	23.57	49	48	23.52	48	41	49	N. W.	12	.72	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	5 0 p. m.	23.57	50	49	23.52	49.5	42	48	N. W.	12	.72	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	6 0 p. m.	23.57	50	49	23.52	49	42	50	N. W.	12	.72	....	Hazy	....	Cir.-cum	1-4	N. W.	.....	.....	....	....	Fair.
	7 0 p. m.	23.57	47	45	23.52	45	40	61	W.	18	1.62	....	Hazy	....	Cir. & cu.	1-4	N.	.....	.....	....	....	Fair.
	8 0 p. m.	23.58	45	39	23.54	39	38	91	W.	22	2.42	....	0	0	Cu.-strat	4-4	W.	7.40 p. m.	.....	.15	....	Heavy rain, thunder-storm.
	9 0 p. m.	23.57	42	40	23.53	40	38	82	W.	22	2.42	....	0	0	Cumulus	2-4	N. W.	.....	8.32 p. m.	.23	....	Fair.
	10 0 p. m.	23.59	43	40	23.55	41	39	82	W.	26	3.38	....	Light fog in the valley.		Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	10 39 p. m.	23.58	43	42	23.54	42	40	83	W.	24	2.88	....	Nimbus...	2-4	Cumulus	2-4	W.	10.30 p. m.	.....	.03	....	Light rain; halo from 8.45 to 10.16.
	12 0 p. m.	23.55	42	42	23.51	42	40	83	S. W.	24	2.88	....	0	0	Cumulus	3-4	W.	.....	10.55 p. m.	.04	....	Clearing.
Knoxville, Tenn.	7 0 a. m.	29.12	63	52	29.021	51	48	78	S.	4	.08	....	0	0	0	0	0	.....	.....	....	....	Clear.
	7 7 a. m.	29.12	63	52	29.021	51	48	78	S.	4	.08	....	0	0	0	0	0	.....	.....	....	....	Clear.
	11 33 a. m.	29.10	68	71	28.985	70	56	35	S.	15	1.12	207	0	0	0	0	0	.....	.....	....	....	Clear.
	2 0 p. m.	29.02	73	77	28.895	76	58	28	S. W.	22	2.42	....	0	0	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	4 7 p. m.	28.98	75	79	28.850	78	60	29	S.	11	.60	....	0	0	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	9 0 p. m.	29.02	70	66	28.902	65	56	53	S. W.	8	.32	....	Stratus ...	2-4	Cumulus	1-4	N. W.	.....	.....	....	....	Cloudy.
	10 33 p. m.	29.04	70	63	28.922	62	57	71	S. W.	7	.24	....	0	0	Cumulus	2-4	N. W.	7 p. m.	7.30 p. m.	.05	....	Fair.

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Meteorological record for May 13, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.53	42	42	23.49	42	40	83	W.	26	3.38	....	Hazy ...	.....	Cirrus ..	1-4	W.	.....	.....	.....	.....	Fair.
	2 0 a. m.	23.52	42	42	23.48	42	40	83	W.	26	3.38	....	Hazy ...	.....	Cirrus ..	1-4	W.	.....	.....	.....	.....	Fair.
	3 0 a. m.	23.52	42	42	23.48	42	40	83	W.	32	5.12	....	Hazy ...	.....	Cirrus ..	1-4	W.	.....	.....	.....	.....	Fair.
	4 0 a. m.	23.51	42	42	23.47	42	40	83	N. W.	34	5.78	....	Cumulus	1-4	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	5 0 a. m.	23.51	42	42	23.47	42	40	83	N. W.	32	5.12	....	Hazy ...	.....	Cir.-cum	2-4	W.	.....	.....	.....	.....	Fair.
	6 0 a. m.	23.52	42	42	23.48	42	40	83	W.	28	3.92	....	Hazy ...	.....	Cir. & cu	1-4	W.	.....	.....	.....	.....	Fair.
	7 14 a. m.	23.54	43	43	23.50	43	40	75	N. W.	28	3.92	....	Hazy ...	.....	Cir. & cu	1-4	N. W.	.....	.....	.....	.....	Fair.
	8 0 a. m.	23.54	44	44	23.50	44	41	76	W.	28	3.92	....	Hazy ...	.....	Cirrus ..	1-4	N. W.	.....	.....	.....	.....	Fair.
	9 0 a. m.	23.55	45	45	23.51	45	41	68	N. W.	26	3.38	....	Hazy ...	.....	Cirrus ..	2-4	N. W.	.....	.....	.....	.....	Fair.
	10 0 a. m.	23.55	47	47	23.50	47	42	62	N. W.	28	3.92	....	Hazy ...	.....	Cirrus ..	2-4	N. W.	.....	.....	.....	.....	Fair.
	11 0 a. m.	23.56	48	49	23.51	49	42	50	N. W.	22	2.42	....	Hazy ...	.....	Cir. & cu	2-4	N. W.	.....	.....	.....	.....	Fair.
	12 0 m ..	23.59	51	52	23.53	52	44	47	W.	20	2.00	544	Hazy ...	.....	Cir. & cu	1-4	W.	.....	.....	.....	.....	Fair.
	1 0 p. m.	23.60	55	55	23.54	55	46	44	W.	16	1.28	....	Hazy ...	.....	Cumulus	1-4	N. W.	.....	.....	.....	.....	Fair.
	2 0 p. m.	23.60	55	55	23.54	55	46	44	W.	12	.72	....	Hazy ...	.....	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
	3 0 p. m.	23.58	56	58	23.51	58	47	37	W.	10	.50	....	Hazy ...	.....	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
	4 14 p. m.	23.55	56	56	23.48	56	45	35	S. W.	12	.72	....	Hazy ...	.....	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
	5 0 p. m.	23.54	56	57	23.47	57	46	36	S. W.	12	.72	....	Hazy ...	.....	Cumulus	2-4	S. W.	.....	.....	.....	.....	Fair.
	6 0 p. m.	23.53	54	53	23.47	53	45	48	W.	12	.72	....	Hazy ...	.....	Cir., cum	3-4	N. W.	.....	.....	.....	.....	Fair.
	7 0 p. m.	23.53	51	49	23.47	49	41	44	N. W.	8	.32	....	Hazy ...	.....	Cumulus	3-4	W.	.....	.....	.....	.....	Fair.
	8 0 p. m.	23.53	51	46	23.47	46	42	69	W.	12	.72	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	9 0 p. m.	23.51	49	45	23.46	45	42	76	W.	24	2.88	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	10 0 p. m.	23.50	48	45	23.45	45	42	76	N. W.	24	2.88	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	10 39 p. m.	23.50	47	44	23.44	44	41	76	N. W.	24	2.88	....	0	0	Cumulus	4-4	N. W.	.....	.....	.....	.....	Cloudy.
	12 0 p. m.	23.49	46	43	23.44	43	41	83	N. W.	20	2.00	....	Stratus .	4-4	Hidden .	.....	.....	.....	.....	.....	.....	Cloudy.
Knoxville, Tenn.	7 0 a. m.	29.05	68	63	28.938	62	55	61	S.	10	.50	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	7 7 a. m.	29.05	68	64	28.938	63	55	61	S.	10	.50	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	11 33 a. m.	29.02	73	77	28.895	76	61	36	S.	13	.84	253	0	0	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
	2 0 p. m.	28.96	76	81	28.827	80	60	24	S. W.	13	.84	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	4 7 p. m.	28.91	75	78	28.780	77	58	27	S.	12	.72	....	Stratus .	2-4	Cumulus	2-4	0	.....	.....	.....	.....	Cloudy.
	9 0 p. m.	28.96	72	71	28.837	70	57	40	S.	14	.98	....	Stratus .	4-4	Hidden .	.....	.....	.....	.....	.....	.....	Threatening.
	10 32 p. m.	29.00	72	67	28.877	67	58	55	S. W.	10	.50	....	Stratus .	4-4	Hidden .	.....	.....	.....	.....	.....	.....	Threatening.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.47	46	42	23.42	42	41	91	N. W.	22	2.42	....	Stratus ...	4-4	Hidden ..	....	.....	.....	.....	....	....	Cloudy.
	2 0 a. m.	23.48	46	42	23.43	42	41	91	N. W.	16	1.28	....	Stratus ...	4-4	Hidden ..	....	.....	.....	.....	....	....	Cloudy.
	3 0 a. m.	23.47	46	41	23.42	41	40	91	W.	15	1.12	....	Fog	....	Hidden ..	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23.47	45	40	23.43	40	39	91	W.	16	1.28	....	Stratus ...	2-4	Cumulus	2-4	E.	.....	.....	....	....	Cloudy.
	5 0 a. m.	23.47	44	40	23.43	40	39	91	W.	17	1.28	....	Fog.....	....	Hidden ..	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	23.47	44	39	23.43	39	38	91	W.	12	.72	....	Fog.....	....	Hidden ..	....	.....	5.40 a. m.	.....	.01	....	Light rain.
	7 14 a. m.	23.47	44	39	23.43	39	38	91	W.	17	1.44	....	Stratus ...	3-4	Cumulus	1-4	E.	.....	6.12 a. m.	.01	....	Cloudy.
	8 0 a. m.	23.46	43	40	23.42	40	39	91	W.	18	1.62	....	Stratus ...	4-4	Hidden ..	....	.....	.....	.....	....	....	Cloudy.
	9 0 a. m.	23.46	42	41	23.42	41	40	91	W.	14	.98	....	Dense fog.	....	Hidden ..	....	.....	8.18 a. m.	.....	.02	....	Light rain.
	10 0 a. m.	23.46	42	42	23.43	42	41	91	S. W.	14	.98	....	Nimbus...	4-4	Hidden ..	....	.....	.....	.....	.03	...	Light rain.
	11 0 a. m.	23.46	43	43	23.42	43	42	92	S. W.	12	.72	....	Stratus ...	4-4	Hidden ..	....	.....	.....	10.43 a. m.	.02	....	Cloudy.
	12 0 m ..	23.43	43	47	23.39	47	46	92	S. W.	12	.72	376	Stratus ...	3-4	Cumulus	2-4	S. W.	.....	.....	....	....	Clearing.
	1 0 p. m.	23.43	44	47	23.39	47	46	92	S. W.	8	.32	...	0	0	Cumulus	4-4	S. W.	.....	.....	....	....	Cloudy.
	2 0 p. m.	23.42	44	44	23.38	44	43	92	S. W.	8	.32	....	Dense fog	....	Hidden ..	....	.....	.....	.....	....	....	Foggy.
	3 0 p. m.	23.40	43	43	23.36	43	43	100	S.	8	.32	....	Dense fog	....	Hidden ..	....	.....	.....	.....	....	....	Foggy.
	4 14 p. m.	23.37	43	43	23.33	43	43	100	S. E.	4	.08	....	Dense fog.	....	Hidden ..	....	.....	4.00 p. m.	.....	.01	....	Light rain.
	5 0 p. m.	23.37	43	43	23.33	43	43	100	S. E.	5	.12	....	Dense fog	....	Hidden ..	....	.....	.....	4.35 p. m.	....	....	Foggy.
	6 0 p. m.	23.36	43	43	23.32	43	43	100	S.	4	.08	....	Dense fog.	....	Hidden ..	....	.....	.....	.....	....	....	Foggy.
	7 0 p. m.	23.36	43	40	23.32	40	40	100	S. E.	4	.08	....	Stratus ...	3-4	Cirrus ..	1-4	0	.....	.....	....	....	Cloudy.
	8 0 p. m.	23.36	43	41	23.32	41	40	91	E.	8	.32	....	Stratus ...	3-4	Cirrus ..	1-4	0	.....	.....	....	....	Cloudy.
	9 0 p. m.	23.36	44	41	23.32	41	40	91	S. E.	12	.72	....	Fog in valley	....	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	10 0 p. m.	23.40	46	40	23.35	40	39	91	S. E.	10	.50	....	Fog in valley	....	Cirrus ..	1-4	S. E.	.....	.....	....	....	Fair.
	10 39 p. m.	23.38	45	40	23.34	40	40	100	S. E.	10	.50	....	Dense fog.	....	Hidden ..	....	.....	.....	.....	....	....	Foggy.
	12 0 p. m.	23.36	45	40	23.32	40	40	100	S. E.	9	.40	....	Nimbus...	4-4	Hidden ..	....	.....	11.06 p. m.	.....	.01	....	Light rain.
Knoxville, Tenn .	7 0 a. m.	28.90	68	61	28.78	60	57	85	N. E.	5	.12	....	Stratus ...	4-4	Hidden ..	....	.....	.....	.....	....	....	Cloudy.
	7 7 a. m.	28.90	68	61	28.788	60	57	85	N. E.	5	.12	...	Stratus ...	4-4	Hidden ..	....	.....	In night.	.....	.01	....	Cloudy.
	11 33 a. m.	28.86	73	70	28.735	69	60	56	N. W.	4	.08	206	Hazy	....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
	2 0 p. m.	28.82	74	72	28.692	71	60	49	S. W.	6	.18	....	Stratus ...	4-4	Hidden ..	....	.....	.....	.....	....	....	Cloudy.
	4 7 p. m.	28.80	74	71	28.672	70	59	50	W.	3	.04	....	Stratus ..	4-4	Hidden ..	....	.....	.....	.....	....	....	Threatening.
	9 0 p. m.	28.78	70	65	28.662	64	58	67	S. W.	8	.32	....	Stratus ...	3-4	Hazy....	....	.....	.....	.....	....	....	Cloudy.
	10 32 p. m.	28.82	70	62	28.702	62	58	78	W.	4	.08	....	Stratus ...	2-4	0	0	0	.....	.....	....	....	Cloudy.

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Meteorological record for May 15, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.36	45	40	23.32	40	40	100	S. E.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 a. m.	23.35	45	40	23.31	40	39	91	S.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3 0 a. m.	23.33	45	39	23.29	39	38	91	S. E.	5	.12	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 0 a. m.	23.31	45	39	23.27	39	38	91	S. E.	5	.12	...	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 a. m.	23.31	45	39	23.27	39	38	91	S. E.	11	.60	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 a. m.	23.31	44	40	23.27	40	40	100	S. E.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	23.32	44	41	23.28	41	41	100	S. E.	16	1.28	....	Nimbus	4-4	Hidden	....	.....	6.10 a. m.	.....	.06	....	Light rain.
	8 0 a. m.	23.33	43	41	23.29	41	41	100	E.	16	1.28	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.04	....	Light rain.
	9 0 a. m.	23.34	43	42	23.30	42	42	100	E.	14	.98	...	Nimbus	4-4	Hidden	....	.....	.....	.....	.03	....	Light rain.
	10 0 a. m.	23.35	43	42	23.31	42	42	100	E.	14	.98	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.06	....	Light rain.
	11 0 a. m.	23.37	44	42	23.33	42	42	100	E.	12	.72	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.09	....	Light rain.
	12 0 m.	23.36	44	42	23.32	42	42	100	E.	8	.32	209	Nimbus	4-4	Hidden	....	.....	.....	.....	.05	....	Light rain.
	1 0 p. m.	23.36	46	42	23.31	42	42	100	E.	12	.72	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.05	....	Light rain.
	2 0 p. m.	23.38	47	45	23.33	45	45	100	E.	5	.12	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.02	....	Light rain.
	3 0 p. m.	23.37	46	46	23.32	46	46	100	E.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.03	....	Light rain.
	4 14 p. m.	23.37	45	44	23.33	44	44	100	E.	1	.01	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.03	....	Light rain.
	5 0 p. m.	23.38	45	45	23.34	45	45	100	N. W.	1	.01	....	Dense fog	....	Hidden	....	.....	.....	4.45 p. m.	.01	....	Foggy.
	6 0 p. m.	23.39	46	43	23.34	43	43	100	W.	1	.01	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 0 p. m.	23.41	46	43	23.36	43	43	100	W.	6	.18	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 p. m.	23.44	53	43	23.38	43	42	92	W.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 p. m.	23.44	56	43	23.37	43	43	100	N. W.	6	.18	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 p. m.	23.45	52	42	23.39	42	42	100	N. W.	8	.32	....	Dense fog	...	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 39 p. m.	23.45	52	42	23.39	42	42	100	N.	8	.32	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	12 0 p. m.	23.43	49	42	23.38	42	42	100	N.	8	.32	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	28.76	68	60	28.64	59	56	81	S. E.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	7 7 a. m.	28.76	68	60	28.64	59	56	81	S. E.	4	.08	....	Stratus	4-4	Hidden	....	.....	9.00 a. m.	10.35 a. m.	.01	....	Cloudy.
	11 33 a. m.	28.80	71	65	28.68	64	58	67	E.	9	.40	.08	Stratus	4-4	Hidden	....	.....	4.15 p. m.	4.45 p. m.	.10	....	Cloudy.
	2 0 p. m.	28.80	72	71	28.677	70	62	61	S.	5	.12	....	Light haze	....	Cir.-cu.	3-4	S. W.	.....	.....	.....	....	Clearing.
	4 7 p. m.	28.80	72	67	28.677	66	62	78	N. E.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	....	Light rain.
	9 0 p. m.	28.85	69	61	28.765	62	61	91	N. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	10 32 p. m.	28.89	70	63	28.772	62	60	87	0	0	0	....	Stratus	2-4	Hazy	....	.....	6.45 p. m.	7.30 p. m.	.06	....	Clearing.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.42	42	42	23.37	42	42	100	N.	10	.50	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23.41	47	41	23.36	41	41	100	N.	10	.50	....	Light fog	.....	Cumulus	1-4	0	.....	.....	....	....	Foggy.
	3 0 a. m.	23.42	45	40	23.38	40	40	100	N. W.	15	1.12	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23.43	45	40	23.39	40	40	100	N. W.	11	.60	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23.43	45	40	23.39	40	40	100	N. W.	11	.60	....	Dense fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	23.46	50	41	23.41	41	40	91	N. W.	12	.72	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23.50	49	41	23.45	41	40	91	N.	10	.50	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 a. m.	23.51	48	44	23.46	44	43	92	N. E.	16	1.28	...	Fog in the valley		Cumulus	2-4	N. E.	.....	.....	....	....	Fair.
	9 0 a. m.	23.54	51	46	23.48	46	45	92	N.	12	.72	....	Cumulus.	1-4	Cumulus	2-4	N.	.....	.....	....	....	Fair.
	10 0 a. m.	23.55	52	46	23.49	46	45	92	N. W.	8	.32	....	0	0	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	11 0 a. m.	23.57	53	49	23.51	49	46	78	N. W.	8	.32	....	Hazy	.....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	12 0 m...	23.58	53	50	23.52	50	47	79	W.	4	.08	199	Hazy	.....	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	1 0 p. m.	23.60	59	51	23.53	51	47	72	N.	8	.32	....	Hazy	.....	Cumulus	4-4	N.	.....	.....	....	....	Cloudy.
	2 0 p. m.	23.60	58	50	23.53	50	46	72	N. W.	6	.18	....	Hazy	.....	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	3 0 p. m.	23.59	56	53	23.52	53	47	61	W.	6	.18	....	Hazy	.....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
	4 14 p. m.	23.59	53	49	23.53	49	46	78	N. W.	12	.72	....	Hazy	.....	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	5 0 p. m.	23.59	51	48	23.53	48	46	85	N. W.	11	.60	....	Hazy	.....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	6 0 p. m.	23.59	58	47	23.52	47	45	85	N. W.	8	.32	....	Hazy	.....	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	7 0 p. m.	23.60	55	47	23.54	47	45	85	N. W.	8	.32	....	Hazy	.....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	8 0 p. m.	23.60	52	46	23.54	46	45	92	N. W.	10	.50	....	Hazy	.....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	9 0 p. m.	23.60	60	45	23.53	45	44	91	N. W.	11	.60	....	Hazy	.....	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	10 0 p. m.	23.63	59	43	23.56	43	42	92	N. W.	12	.72	....	Stratus	1-4	0	0	0	.....	.....	....	....	Fair.
	10 39 p. m.	23.64	57	42	23.57	42	41	91	N. W.	12	.72	....	0	0	0	0	0	.....	.....	....	....	Clear.
	12 0 p. m.	23.60	53	41	23.54	41	40	91	W.	14	.98	....	0	0	Cumulus	1-4	W.	.....	.....	....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.07	68	62	28.962	61	60	91	S. W.	2	.02	....	Stratus	3-4	Cumulus	2-4	N. W.	.....	.....	....	....	Cloudy.
	7 7 a. m.	29.07	68	62	28.962	61	60	91	S. W.	2	.02	....	Stratus	3-4	Cumulus	2-4	N. W.	.....	.....	....	....	Cloudy.
	11 33 a. m.	29.04	74	72	28.912	71	62	60	W.	4	.08	77	Hazy	.....	Cumulus	3-4	N. W.	.....	.....	....	....	Fair.
	2 0 p. m.	29.03	75	75	28.900	74	63	51	W.	3	.04	....	Stratus	2-4	Cumulus	2-4	0	.....	.....	....	....	Cloudy.
	4 7 p. m.	29.02	76	77	28.887	76	64	48	W.	3	.04	....	Hazy	.....	Cumulus	3-4	0	.....	.....	....	....	Fair.
	9 0 p. m.	29.06	72	68	28.937	67	57	50	E.	4	.08	....	Hazy	.....	0	0	0	.....	.....	....	....	Clear.
	10 32 p. m.	29.09	72	66	28.967	65	55	50	N.	8	.32	....	Stratus	1-4	0	0	0	.....	.....	....	....	Clear.

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Meteorological record for May 17, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.59	49	40	23.54	40	38	82	N. W.	18	1.62	....	0	0	Cumulus	1-4	N. W.	.....	.....	.....	....	Fair.
	2 0 a. m.	23.58	47	40	23.53	40	38	82	N. W.	18	1.62	....	Light fog	.....	Cumulus	2-4	N. W.	.....	.....	.....	....	Fair.
	3 0 a. m.	23.59	48	40	23.54	40	38	82	N. W.	12	.72	....	Hazy	.....	Cumulus	2-4	N.	.....	.....	.....	....	Fair.
	4 0 a. m.	23.60	48	40	23.55	40	38	82	N. W.	15	1.12	....	Hazy	.....	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	5 0 a. m.	23.60	49	39	23.55	39	37	82	W.	20	2.00	....	Hazy	.....	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	6 0 a. m.	22.60	46	40	23.56	40	38	82	W.	18	1.62	....	Hazy	.....	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	7 14 a. m.	23.62	50	42	23.57	42	40	83	W.	18	1.62	....	Hazy	.....	Cirrus...	1-4	0	.....	.....	.....	....	Fair.
	8 0 a. m.	23.63	49	44	23.58	44	41	76	W.	12	.72	....	Hazy	.....	Cirrus...	1-4	0	.....	.....	.....	....	Fair.
	9 0 a. m.	23.63	49	49	23.58	49	44	64	W.	16	1.28	....	Hazy	.....	Cirrus...	1-4	0	.....	.....	.....	....	Fair.
	10 0 a. m.	23.64	52	54	23.58	54	46	49	N. W.	4	.08	....	Hazy	.....	Cumulus	1-4	E.	.....	.....	.....	....	Fair.
	11 0 a. m.	23.66	54	55	23.60	55	47	50	N. W.	6	.18	....	Hazy	.....	Cumulus	1-4	E.	.....	.....	.....	....	Fair.
	12 0 m.	23.67	55	55	23.61	55	52	80	N. W.	6	.18	281	Hazy	.....	Cumulus	1-4	W.	.....	.....	.....	....	Fair.
	1 0 p. m.	23.67	58	57	23.60	57	48	46	W.	6	.18	....	Hazy	.....	Cumulus	1-4	S.	.....	.....	.....	....	Fair.
	2 0 p. m.	23.68	61	59	23.60	59	48	38	W.	7	.24	....	Hazy	.....	Cumulus	1-4	N. W.	.....	.....	.....	....	Fair.
	3 0 p. m.	23.68	62	58	23.60	58	47	37	W.	6	.18	....	Hazy	.....	Cumulus	1-4	0	.....	.....	.....	....	Fair.
	4 14 p. m.	23.68	63	60	23.60	60	49	39	S.W.	8	.32	....	Hazy	.....	Cir. & cu.	2-4	0	.....	.....	.....	....	Fair.
	5 0 p. m.	23.67	61	58	23.59	58	47	37	S.W.	8	.32	....	Hazy	.....	Cir. & cu.	2-4	0	.....	.....	.....	....	Fair.
	6 0 p. m.	23.68	59	57	23.61	57	45	30	W.	8	.32	....	Hazy	.....	Cirrus...	1-4	0	.....	.....	.....	....	Fair.
	7 0 p. m.	23.69	58	49	23.62	49	43	57	W.	7	.24	....	Hazy	.....	Cirrus...	1-4	0	.....	.....	.....	....	Fair.
	8 0 p. m.	23.69	63	46	23.61	46	44	84	S.W.	8	.32	....	Hazy	.....	Cirrus...	2-4	N. W.	.....	.....	.....	....	Fair.
	9 0 p. m.	23.69	61	46	23.61	46	44	84	S.	6	.18	....	Fog	.....	Cirrus...	3-4	0	.....	.....	.....	....	Cloudy.
	10 0 p. m.	23.69	61	47	23.61	47	45	85	S.	4	.08	....	Light fog	.....	Cirrus...	3-4	0	.....	.....	.....	....	Cloudy.
	10 39 p. m.	23.69	60	46	23.62	46	44	84	S.	5	.12	....	Light fog	.....	Cirrus...	3-4	0	.....	.....	.....	....	Cloudy.
	12 0 p. m.	23.68	59	46	23.61	46	43	77	S. E.	6	.18	....	0	0	Cirrus...	2-4	0	.....	.....	.....	....	Fair.
Knoxville, Tenn..	7 0 a. m.	29.15	67	58	29.040	57	53	75	S. E.	7	.24	....	Hazy	.....	Cirrus...	1-8	0	.....	.....	.....	....	Clear.
	7 7 a. m.	29.15	67	59	29.040	58	54	75	S. E.	7	.24	....	Hazy	.....	Cirrus...	1-8	0	.....	.....	.....	....	Fair.
	11 33 a. m.	29.16	73	71	29.035	70	56	35	E.	3	.04	106	Hazy	.....	Cirrus...	1-8	0	.....	.....	.....	....	Fair.
	2 0 p. m.	29.10	73	77	28.975	76	60	34	E.	4	.08	....	Hazy	.....	Cir.-cum	1-4	N. W.	.....	.....	.....	....	Fair.
	4 7 p. m.	29.08	75	80	28.950	79	60	26	E.	4	.08	....	Hazy	.....	Cirrus...	1-8	0	.....	.....	.....	....	Fair.
	9 0 p. m.	29.06	71	71	28.940	70	55	32	N. W.	8	.32	....	0	0	Hazy	....	0	.....	.....	.....	....	Fair.
	10 32 p. m.	29.06	73	68	28.935	67	53	32	N. W.	4	.08	....	0	0	Cirrus...	2-4	0	.....	.....	.....	....	Fair.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM Dry bulb.	HYGROM Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.66	58	45	23.59	45	42	76	S. E.	6	.18	...	0	0	Cirrus ..	2-4	.....	.....	.....	.....	.....	Fair.
	2 0 a. m.	23.65	56	45	23.58	45	43	84	S. E.	8	.32	....	Light fog	.....	0	0	0	.....	.....	.....	.....	Foggy.
	3 0 a. m.	23.65	54	44	23.59	44	43	92	S. E.	12	.72	....	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	4 0 a. m.	23.64	52	43	23.58	43	42	92	S. E.	12	.72	....	0	0	Cirrus ..	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	5 0 a. m.	23.64	52	44	23.58	44	43	92	S. E.	20	2.00	....	Light fog	.....	Cirrus ..	3-4	N.	.....	.....	.....	.....	Cloudy.
	6 0 a. m.	23.67	51	45	23.61	45	45	100	S. E.	16	1.28	....	Fog	.....	0	0	0	.....	.....	.....	.....	Foggy.
	7 14 a. m.	23.67	51	48	23.61	48	46	85	W.	8	.32	....	Light fog	.....	Cirrus ..	1-4	.....	.....	.....	.....	.....	Fair.
	8 0 a. m.	23.68	51	50	23.62	50	48	86	W.	9	.40	....	Hazy ...	.....	Cirrus ..	3-4	.....	.....	.....	.....	.....	Cloudy.
	9 0 a. m.	23.70	57	56	23.63	56	50	63	W.	8	.32	....	Hazy ...	.....	Cirrus ..	2-4	.....	.....	.....	.....	.....	Fair.
	10 0 a. m.	23.70	57	53	23.63	53	49	73	W.	9	.40	....	Hazy ...	.....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	11 0 a. m.	23.71	57	52	23.64	52	48	73	W.	11	.60	....	Hazy ...	.....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	12 0 m ..	23.71	62	53	23.63	53	49	73	W.	10	.50	203	Smoky ..	.....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	1 0 p. m.	23.71	65	55	23.62	55	50	68	N. W.	7	.24	....	Smoky .	.....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	2 0 p. m.	23.69	63	54	23.61	54	49	67	W.	9	.40	....	Stratus	2-4	Cumulus	2-4	W.	.....	.....	.....	.....	Threatening.
	3 0 p. m	23.68	59	52	23.61	52	50	86	W.	14	.98	....	Smoky..	.....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	4 14 p. m.	23.68	59	51	23.61	51	49	86	W.	5	.12	....	Stratus	3-4	Cumulus	2-4	.....	.....	.....	.....	.....	Cloudy.
	5 0 p. m.	23.68	58	52	23.61	52	50	86	W.	5	.12	....	Stratus	1-4	Cumulus	2-4	W.	.....	.....	.....	.....	Cloudy.
	6 0 p. m.	23.69	61	53	23.61	53	50	80	W.	3	.04	....	Stratus	4-4	Hidden .	....	.....	.....	.....	.....	.....	Cloudy.
	7 0 p. m.	23.68	57	51	23.61	51	50	93	S.	8	.32	....	Fog	.....	Hidden .	....	.....	6.15 p. m	6.48 p m.	.01	....	Foggy.
	8 0 p. m.	23.68	63	50	23.60	50	50	100	S.	12	.72	....	Fog	.....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	9 0 p. m.	23.70	62	50	23.62	50	50	100	S.W.	16	1.28	...	Fog	.....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	10 0 p. m.	23.70	59	49	23.63	49	49	100	S.W.	20	2.00	....	Fog	.....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	10 39 p. m.	23.68	58	50	23.61	50	50	100	S.	20	2.00	....	Fog	.....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	12 0 p. m.	23.68	58	50	23.61	50	50	100	S.W.	18	1.62	....	Fog	.....	Hidden .	....	.....	.....	.....	.....	49.7	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.12	68	60	29.008	59	51	53	N. E.	6	.18	....	Stratus .	4-4	Hidden .	....	.....	.....	.....	.....	.....	Cloudy.
	7 7 a. m.	29.12	68	61	29.008	60	50	46	N. E.	6	.16	..	Stratus .	4-4	Hidden .	....	.....	.....	.....	.....	.....	Cloudy.
	11 33 a. m.	29.12	75	75	28.990	74	61	42	W.	6	.18	115	Hazy ...	.....	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	2 0 p. m.	29.07	76	76	28.937	75	62	44	N.. W	9	.40	....	Hazy ...	.....	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	4 7 p. m.	29.04	78	81	28.902	80	67	47	N. E.	4	.09	....	Hazy ...	.....	Cirrus ..	4-4	W.	.....	.....	.....	.....	Cloudy.
	9 0 p. m.	29.04	73	72	28.915	71	63	62	S.	8	.32	....	Hazy ..	.....	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
	10 32 p. m.	29.03	76	69	28.897	68	62	69	N. E.	3	.04	....	Hazy ...	.....	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.

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Meteorological record for May 17, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.59	49	40	23.54	40	38	82	N. W.	18	1.62	....	0	0	Cumulus	1-4	N. W.	.....	.....	....	....	Fair.
	2 0 a. m.	23.58	47	40	23.53	40	38	82	N. W.	18	1.62	....	Light fog	.....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	3 0 a. m.	23.59	48	40	23.54	40	38	82	N. W.	12	.72	....	Hazy	.....	Cumulus	2-4	N.	.....	.....	....	....	Fair.
	4 0 a. m.	23.60	48	40	23.55	40	38	82	N. W.	15	1.12	....	Hazy	.....	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	5 0 a. m.	23.60	49	39	23.55	39	37	82	W.	20	2.00	....	Hazy	.....	Cirrus...	2-4	0	.....	.....	....	....	Fair.
	6 0 a. m.	22.60	46	40	23.56	40	38	82	W.	18	1.62	....	Hazy	.....	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	7 14 a. m.	23.62	50	42	23.57	42	40	83	W.	18	1.62	....	Hazy	.....	Cirrus...	1-4	0	.....	.....	....	....	Fair.
	8 0 a. m.	23.63	49	44	23.58	44	41	76	W.	12	.72	....	Hazy	.....	Cirrus...	1-4	0	.....	.....	....	....	Fair.
	9 0 a. m.	23.63	49	49	23.58	49	44	64	W.	16	1.28	....	Hazy	.....	Cirrus...	1-4	0	.....	.....	....	....	Fair.
	10 0 a. m.	23.64	52	54	23.58	54	46	49	N. W.	4	.08	....	Hazy	.....	Cumulus	1-4	E.	.....	.....	....	....	Fair.
	11 0 a. m.	23.66	54	55	23.60	55	47	50	N. W.	6	.18	....	Hazy	.....	Cumulus	1-4	E.	.....	.....	....	....	Fair.
	12 0 m.	23.67	55	55	23.61	55	52	80	N. W.	6	.18	281	Hazy	.....	Cumulus	1-4	W.	.....	.....	....	....	Fair.
	1 0 p. m.	23.67	58	57	23.60	57	48	46	W.	6	.18	....	Hazy	.....	Cumulus	1-4	S.	.....	.....	....	....	Fair.
	2 0 p. m.	23.68	61	59	23.60	59	48	38	W.	7	.24	....	Hazy	.....	Cumulus	1-4	N. W.	.....	.....	....	....	Fair.
	3 0 p. m.	23.68	62	58	23.60	58	47	37	W.	6	.18	....	Hazy	.....	Cumulus	1-4	0	.....	.....	....	....	Fair.
	4 14 p. m.	23.68	63	60	23.60	60	49	39	S. W.	8	.32	....	Hazy	.....	Cir. & cu.	2-4	0	.....	.....	....	....	Fair.
	5 0 p. m.	23.67	61	58	23.59	58	47	37	S. W.	8	.32	....	Hazy	.....	Cir. & cu.	2-4	0	.....	.....	....	....	Fair.
	6 0 p. m.	23.68	59	57	23.61	57	45	30	W.	8	.32	....	Hazy	.....	Cirrus...	1-4	0	.....	.....	....	....	Fair.
	7 0 p. m.	23.69	58	49	23.62	49	43	57	W.	7	.24	....	Hazy	.....	Cirrus...	1-4	0	.....	.....	....	....	Fair.
	8 0 p. m.	23.69	63	46	23.61	46	44	84	S. W.	8	.32	....	Hazy	.....	Cirrus...	2-4	N. W.	.....	.....	....	....	Fair.
	9 0 p. m.	23.69	61	46	23.61	46	44	84	S.	6	.18	....	Fog	.....	Cirrus...	3-4	0	.....	.....	....	....	Cloudy.
	10 0 p. m.	23.69	61	47	23.61	47	45	85	S.	4	.08	....	Light fog	.....	Cirrus...	3-4	0	.....	.....	....	....	Cloudy.
	10 39 p. m.	23.69	60	46	23.62	46	44	84	S.	5	.12	....	Light fog	.....	Cirrus...	3-4	0	.....	.....	....	....	Cloudy.
	12 0 p. m.	23.68	59	46	23.61	46	43	77	S. E.	6	.18	....	0	0	Cirrus...	2-4	0	.....	.....	....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.15	67	58	29.040	57	53	75	S. E.	7	.24	....	Hazy	.....	Cirrus...	1-8	0	.....	.....	....	....	Clear.
	7 7 a. m.	29.15	67	59	29.040	58	54	75	S. E.	7	.24	....	Hazy	.....	Cirrus...	1-8	0	.....	.....	....	....	Fair.
	11 33 a. m.	29.16	73	71	29.035	70	56	35	E.	3	.04	106	Hazy	.....	Cirrus...	1-8	0	.....	.....	....	....	Fair.
	2 0 p. m.	29.10	73	77	28.975	76	60	34	E.	4	.08	....	Hazy	.....	Cir.-cum.	1-4	N. W.	.....	.....	....	....	Fair.
	4 7 p. m.	29.08	75	80	28.950	79	60	26	E.	4	.08	....	Hazy	.....	Cirrus...	1-8	0	.....	.....	....	....	Fair.
	9 0 p. m.	29.06	71	71	28.940	70	55	32	N. W.	8	.32	....	0	0	Hazy	....	0	.....	.....	....	....	Fair.
	10 38 p. m.	29.06	73	68	28.935	67	53	32	N. W.	4	.08	....	0	0	Cirrus...	2-4	0	.....	.....	....	....	Fair.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM Dry bulb.	HYGROM Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.66	58	45	23.59	45	42	76	S. E.	6	.18	...	0	0	Cirrus ..	2-4	.....	.....	.....	.....	.....	Fair.
	2 0 a. m.	23.65	56	45	23.58	45	43	84	S. E.	8	.32	....	Light fog	.....	0	0	0	.....	.....	.....	.....	Foggy.
	3 0 a. m.	23.65	54	44	23.59	44	43	92	S. E.	12	.72	...	Fog	.....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	4 0 a. m.	23.64	52	43	23.58	43	42	92	S. E.	12	.72	....	0	0	Cirrus ..	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	5 0 a. m.	23.64	52	44	23.58	44	43	92	S. E.	20	2.00	....	Light fog	.....	Cirrus ..	3-4	N.	.....	.....	.....	.....	Cloudy.
	6 0 a. m.	23.67	51	45	23.61	45	45	100	S. E.	16	1.28	....	Fog	.....	0	0	0	.....	.....	.....	.....	Foggy.
	7 14 a. m.	23.67	51	48	23.61	48	46	85	W.	8	.32	....	Light fog	.....	Cirrus ..	1-4	.....	.....	.....	.....	.....	Fair.
	8 0 a. m.	23.68	51	50	23.62	50	48	86	W.	9	.40	....	Hazy ...	.....	Cirrus ..	3-4	.....	.....	.....	.....	.....	Cloudy.
	9 0 a. m.	23.70	57	56	23.63	56	50	63	W.	8	.32	....	Hazy ...	.....	Cirrus ..	2-4	.....	.....	.....	.....	.....	Fair.
	10 0 a. m.	23.70	57	53	23.63	53	49	73	W.	9	.40	....	Hazy ...	.....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	11 0 a. m.	23.71	57	52	23.64	52	48	73	W.	11	.60	....	Hazy ...	.....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	12 0 m ..	23.71	62	53	23.63	53	49	73	W.	10	.50	203	Smoky ..	.....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	1 0 p. m.	23.71	65	55	23.62	55	50	68	N. W.	7	.24	....	Smoky .	.....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	2 0 p. m.	23.69	63	54	23.61	54	49	67	W.	9	.40	....	Stratus	2-4	Cumulus	2-4	W.	.....	.....	.....	.....	Threatening.
	3 0 p. m	23.68	59	52	23.61	52	50	86	W.	14	.98	....	Smoky..	.....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	4 14 p. m.	23.68	59	51	23.61	51	49	86	W.	5	.12	....	Stratus	3-4	Cumulus	2-4	.....	.....	.....	.....	.....	Cloudy.
	5 0 p. m.	23.68	58	52	23.61	52	50	86	W.	5	.12	....	Stratus	1-4	Cumulus	2-4	W.	.....	.....	.....	.....	Cloudy.
	6 0 p. m.	23.69	61	53	23.61	53	50	80	W.	3	.04	....	Stratus	4-4	Hidden .	....	.....	.....	.....	.....	.....	Cloudy.
	7 0 p. m.	23.68	57	51	23.61	51	50	93	S.	8	.32	....	Fog	.....	Hidden .	....	.....	6.15 p. m.	6.48 p. m.	.01	....	Foggy.
	8 0 p. m.	23.68	63	50	23.60	50	50	100	S.	12	.72	....	Fog	.....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	9 0 p. m.	23.70	62	50	23.62	50	50	100	S.W.	16	1.28	....	Fog	.....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	10 0 p. m.	23.70	59	49	23.63	49	49	100	S.W.	20	2.00	....	Fog	.....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	10 39 p. m.	23.68	58	50	23.61	50	50	100	S.	20	2.00	....	Fog	.....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	12 0 p. m.	23.68	58	50	23.61	50	50	100	S.W.	18	1.62	....	Fog	.....	Hidden .	....	.....	.....	.....	.....	49.7	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.12	68	60	29.008	59	51	53	N. E.	6	.18	....	Stratus .	4-4	Hidden .	....	.....	.....	.....	.....	.....	Cloudy.
	7 7 a. m.	29.12	68	61	29.008	60	50	46	N. E.	6	.18	....	Stratus .	4-4	Hidden .	....	.....	.....	.....	.....	.....	Cloudy.
	11 33 a. m.	29.12	75	75	28.980	74	61	42	W.	6	.18	115	Hazy ...	.....	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	2 0 p. m.	29.07	76	76	28.937	75	62	44	N.. W	9	.40	....	Hazy ...	.....	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	4 7 p. m.	29.04	78	81	28.902	80	67	47	N. E.	4	.08	....	Hazy ...	.....	Cirrus ..	4-4	W.	.....	.....	.....	.....	Cloudy.
	9 0 p. m.	29.04	73	72	28.915	71	63	62	S.	8	.32	....	Hazy ..	.....	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
	10 32 p. m.	29.03	76	69	28.897	68	62	69	N. E.	3	.04	....	Hazy ...	.....	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.

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Meteorological record for May 19, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.66	57	50	23.59	50	50	100	S. W.	18	1.62	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23.65	57	49	23.58	49	49	100	S. W.	24	2.88	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.63	56	49	23.56	49	48.5	96	S. W.	28	3.92	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	4 0 a. m.	23.61	55	49	23.55	49	48.5	96	S. W.	26	3.12	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	5 0 a. m.	23.64	53	49	23.58	49	49	100	S. W.	24	2.88	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	23.62	52	49	23.56	49	49	100	S. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23.62	52	50	23.56	50	50	100	S. W.	24	2.88	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 a. m.	23.62	52	50	23.56	50	50	100	S. W.	27	3.63	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 a. m.	23.62	52	50	23.56	50	50	100	W.	23	2.64	....	Light fog	....	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.
	10 0 a. m.	23.63	54	52	23.57	52	50	86	W.	17	1.44	....	Hazy	....	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.
	11 0 a. m.	23.64	56	52	23.57	52	50	86	W.	18	1.62	....	Stratus	3-4	Cumulus	1-4	W.	.....	.....	....	....	Cloudy.
	12 0 m ..	23.64	60	58	23.57	58	54	76	W.	8	.32	393	Hazy	....	Cumulus	4 4	W.	.....	.....	....	....	Cloudy.
	1 0 p. m.	23.63	59	60	23.56	60	55.5	73	S. W.	6	.18	....	Hazy	....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy; at 1.15 p. m. thunder storm east of this station.
	2 0 p. m.	23.65	59	54	23.58	54	53	93	S. W.	4	.08	....	0	0	Cu. strat	3-4	S. W.	1.34 p. m.	.....	.07	....	Light rain; hail.
	3 0 p. m.	23.61	57	54	23.54	54	53	93	S. W.	6	.18	....	Light fog	....	Cu.-strat	3-4	S. W.	.....	.....	.04	....	Light rain.
	4 14 p. m.	23.59	54	49	23.53	49	49	100	S. W.	20	2.00	....	Light fog	....	Cumulus	2-4	S. W.	.....	3.35 p. m.	.19	....	Cloudy.
	5 0 p. m.	23.60	55	51	23.54	51	49	80	W.	17	1.44	....	Light fog	....	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy.
	6 0 p. m.	23.59	53	50	23.53	50	49	93	S. W.	16	1.28	....	Hazy	....	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.
	7 0 p. m.	23.60	54	50	23.54	50	49	93	W.	18	1.62	....	Hazy	....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
	8 0 p. m.	23.60	55	50	23.54	50	49	93	S. W.	12	.72	....	0	0	Cumulus	4-4	S. W.	.....	.....	....	....	Cloudy.
	9 0 p. m.	23.63	57	50	23.56	50	49.5	96	S. W.	12	.72	....	Light fog	....	Cu.-strat	4-4	.....	.....	.....	....	....	Threatening.
	10 0 p. m.	23.64	58	51	23.57	51	50.5	96	S. W.	10	.50	....	Light fog	....	Cumulus	3-4	.....	.....	.....	....	....	Cloudy; heat-lightning in W. horizon.
	10 30 p. m.	23.65	59	50	23.58	50	49	93	S. W.	12	.72	....	Lt. fog in valley		Cumulus	2-4	.....	.....	.....	....	....	Fair; heat-lightning in N. and N. E. horizon.
	12 0 p. m.	23.63	56	49	23.58	49	48	93	S. W.	20	2.00	....	Lt. fog in valley		Cumulus	2-4	S. W.	.....	.....	....	51	Fair; heat-lightning in N. E. horizon.
Knoxville, Tenn	7 0 a. m.	29.02	73	66	28.895	65	62	84	0	0	0	....	Nimbus	4-4	Hidden	....	.....	.....	.....	....	....	Light rain.
	7 7 a. m.	29.02	73	66	28.895	65	62	84	0	0	0	....	Nimbus	4-4	Hidden	....	.....	7.25 a. m.	7.40 a. m.	Blk	....	Light rain.
	11 32 a. m.	29.01	78	77	28.872	76	66	56	S. W.	18	1.62	141	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	0 0 p. m.	28.96	80	79	28.837	78	66	51	S. W.	10	1.25	..	Stratus	2-4	Cumulus	1-4	W.	.....	.....	....	....	Clearing.
	4 7 p. m.	28.95	82	82	28.802	81	66	47	S. W.	20	4.00	..	Hazy	..	Cumulus	4-4	S. W.	.....	.....	..	....	Cloudy.
	9 0 p. m.	28.99	77	75	28.854	74	67	64	S. W.	6	18		Stratus	2-4	Hazy	..	.....	.....	.....	..	....	Cloudy.
	10 34 p. m.	28.98	76	73	28.847	72	66	71	W	10	50		0	0	Cumulus	1-4	0	.....	.....	....	....	Fair.

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Meteorological record for May 20, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.63	55	49	23.57	49	48	93	S. W.	20	2.00	....	Light fog in the valley.		Cumulus.	2-4	.....	.....	.....	....	....	Fair; heat-lightn'g in N. and S. W. horizon.
	2 0 a. m.	23.63	55	48	23.57	48	47.5	96	S. W.	16	1.28	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.64	56	47	23.57	47	47	100	W.	16	1.23	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23.64	56	46	23.57	46	46	100	S. W.	12	.72	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23.65	56	47	23.58	47	47	100	W.	14	.98	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	23.66	57	48	23.59	48	48	100	W.	8	.32	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	24.67	56	50	23.60	50	50	100	W.	7	.24	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 a. m.	23.69	56	50	23.62	50	50	100	W.	8	.32	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 a. m.	23.71	61	52	23.63	52	51	93	W.	9	.40	....	Light fog	.....	Cumulus.	1-4	W.	.....	.....	....	....	Fair.
	10 0 a. m.	23.72	63	55	23.64	55	52	80	N. W.	8	.32	....	Hazy and fog	.....	Cumulus.	2-4	N. W.	.....	.....	....	....	Fair.
	11 0 a. m.	23.73	63	58	23.65	58	54	76	N. W.	4	.08	....	Hazy and fog	.....	Cumulus.	3-4	W.	.....	.....	....	....	Cloudy.
	12 0 m ..	23.74	63	63	23.66	63	58	72	N. W.	4	.08	290	Hazy and fog	.....	Cumulus.	3-4	N. W.	.....	.....	....	....	Cloudy.
	1 0 p. m.	23.73	62	61	23.65	61	55	66	W.	4	.08	....	Hazy and fog	.....	Cumulus.	4-4	W.	.....	.....	....	....	Cloudy.
	2 0 p. m	23.72	60	58	23.65	58	54	76	S. W.	2	.02	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 p. m.	23.72	60	54	23.64	54	53	93	S. E.	5	.12	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 14 p. m.	23.72	61	53	23.64	53	52	93	S. E.	8	.32	....	Nimbus	4-4	Hidden	....	.....	3.54 p. m.	.....	.02	....	Light rain.
	5 0 p. m.	23.74	60	49	23.67	49	45	71	N. E.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.31	....	Light rain; thunder-st'rm with heavy rain at 4.20 p. m., S. to N.
	6 0 p. m.	23.72	56	49	23.65	49	44	64	E.	10	.50	....	Stratus..	1-4	Cumulus.	4-4	.....	.....	5.16 p. m.	.02	....	Cloudy.
	7 0 p. m.	23.72	58	50	23.65	50	46	72	E.	6	.18	....	Hazy	.....	Cirrus ..	2-4	.....	.....	.....	.....	....	Fair.
	8 0 p. m.	23.73	59	49	23.66	49	48	93	S. E.	12	.72	....	Nimbus	4-4	Hidden	....	.....	7.35 p. m.	.....	.01	....	Light rain.
	9 0 p. m.	23.73	60	48	23.65	48	48	100	S. E.	16	1.28	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.06	....	Light rain.
	10 0 p. m.	23.74	63	48	23.66	48	48	100	S. E.	12	.72	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.07	....	Light rain.
	10 39 p. m.	23.73	63	48	23.65	48	48	100	S. E.	12	.72	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.05	....	Light rain.
	12 0 p. m.	23.72	60	47	23.64	47	47	100	S. E.	16	1.28	....	Fog	.....	Hidden	....	.....	.....	11.23 p. m.	.02	51.1	Foggy.
Knoxville, Tenn...	7 0 a. m.	29.11	74	70	28.982	69	66	84	S. W.	4	.08	....	Hazy	.....	Cumulus.	1-4	W.	.....	.....	....	....	Fair.
	7 7 a. m.	29.11	74	70	28.982	69	66	84	S. W.	4	.08	....	Hazy	.....	Cumulus.	1-4	W.	.....	.....	....	....	Fair.
	11 33 a. m.	29.11	80	80	28.967	79	67	51	W.	8	.32	210	0	0	Cumulus.	1-4	W.	.....	.....	....	....	Fair.
	2 0 p. m.	29.05	82	85	28.902	84	67	37	W.	8	.32	....	0	0	Cumulus.	1-4	0	.....	.....	....	....	Fair.
	4 7 p. m.	29.05	82	90	28.902	89	68	24	S. W.	6	.18	....	0	0	Cumulus.	1-4	0	.....	.....	....	....	Fair.
	9 0 p. m.	29.09	79	77	28.954	76	66	56	W.	4	.02	....	Stratus..	4-4	Hidden	....	.....	9.45 p. m.	10.30 p. m.	....	....	Cloudy.
	10 32 p. m.	29.07	79	68	28.929	67	64	84	W.	13	.84	....	Nimbus	4-4	Hidden	....	.....	10.30 p. m.	11.30 p. m.	27	....	Heavy rain.

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Meteorological record for May 21, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Comm'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.72	61	47	23.64	47	47	100	S. E.	12	.72	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23.69	60	47	23.62	47	47	100	S. E.	12	.72	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.68	59	47	23.62	47	47	100	E.	12	.72	....	Nimbus	4-4	Hidden	....	.....	2.18 a. m.	.....	.03	....	Light rain.
	4 0 a. m.	23.69	59	46	23.62	46	46	100	E.	14	.98	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.04	....	Light rain.
	5 0 a. m.	23.69	57	47	23.62	47	47	100	S. E.	11	.60	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.06	....	Light rain.
	6 0 a. m.	23.70	56	47	23.63	47	47	100	S. E.	14	.98	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.07	....	Light rain.
	7 14 a. m.	23.71	61	48	23.63	48	48	100	S. E.	10	.50	....	Dense fog	.....	Hidden	....	.....	.....	6.45 a. m.	.05	....	Foggy.
	8 0 a. m.	23.71	60	49	23.63	49	49	100	S. E.	12	.72	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 a. m.	23.71	58	49	23.64	49	49	100	E.	12	.72	....	Dense fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 a. m.	23.70	58	48	23.63	48	48	100	S. E.	12	.72	....	Nimbus	4-4	Hidden	....	.....	9.32 a. m.	.....	....	....	Light rain.
	11 0 a. m.	23.70	59	50	23.63	50	50	100	S. E.	14	.98	....	Fog	.....	Hidden	....	.....	.....	10.24 a. m.	.03	....	Foggy.
	12 0 p. m.	23.70	59	50	23.63	50	50	100	E.	9	.40	249	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	1 0 p. m.	23.70	58	50	23.63	50	50	100	S.W.	7	.24	....	Nimbus	4-4	Hidden	....	.....	12.30 p. m.	.....	.16	....	Heavy rain.
	2 0 p. m.	23.69	58	51	23.62	51	51	100	E.	4	.08	....	Dense fog	.....	Hidden	....	.....	.....	1.35 p. m.	.14	....	Foggy.
	3 0 p. m.	23.67	56	50	23.60	50	50	100	S. E.	4	.08	....	Dense fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy; mist.
	4 14 p. m.	23.67	52	49	23.61	49	49	100	S. E.	4	.08	....	Dense fog	.....	Hidden	....	.....	3.10 p. m.	.....	.12	....	Light rain.
	5 0 p. m.	23.66	54	51	23.60	51	50.5	96	S.W.	12	.72	....	Dense fog	.....	Hidden	....	.....	.....	.....	.05	....	Light rain.
	6 0 p. m.	23.64	53	51	23.58	51	51	100	S.W.	16	1.28	....	Dense fog	.....	Hidden	....	.....	.....	.....	.02	....	Light rain.
	7 0 p. m.	23.66	55	48	23.60	48	48	100	S.W.	12	.72	....	Dense fog	.....	Hidden	....	.....	.....	.....	.02	....	Light rain.
	8 0 p. m.	23.66	53	48	23.60	48	48	100	S.W.	16	1.28	....	Dense fog	.....	Hidden	....	.....	.....	.....	.03	....	Light rain.
	9 0 p. m.	23.66	53	48	23.60	48	48	100	S.W.	16	1.28	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.02	....	Light rain.
	10 0 p. m.	23.67	54	49	23.61	49	49	100	S.W.	12	.72	....	Fog	.....	Hidden	....	.....	.....	9.28 p. m.	.01	48.5	Foggy.
	10 39 p. m.	23.66	53	48	23.60	48	47.5	96	S.W.	16	1.28	....	Light fog	.....	Cirrus	3-4	S. W.	.....	.....	....	....	Cloudy.
	12 0 m.	23.66	51	47	23.60	47	47	100	S.W.	20	2.00	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.10	77	67	28.964	66	63	84	N.	6	.18	....	0	0	Cir. & cu	4-4	0	.....	.....	....	....	Clearing.
	7 7 a. m.	29.10	77	67	28.964	66	63	84	N.	6	.18	....	0	0	Cir. & cu	4-4	0	10.00 a. m.	2.45 p. m.	.06	....	Clearing.
	11 33 a. m.	29.10	76	67	28.907	66	64	90	N.	10	.50	138	Nimbus	4-4	Hidden	....	.....	.....	.....	....	....	Light rain.
	2 0 p. m.	29.05	75	66	28.926	65	64	94	E.	12	.72	..	Nimbus	4-4	Hidden	....	.....	.....	.....	....	....	Light rain.
	4 7 p. m.	29.04	75	69	28.910	68	66	90	E.	8	.32	....	Stratus	1-4	Cumulus	4-4	W.	5.30 p. m.	6.00 p. m.	.50	....	Clearing.
	9 0 p. m.	29.02	74	66	28.892	65	64	94	E.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	10 39 p. m.	29.05	73	66	28.925	65	63	90	N. E.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.04	....	Cloudy.

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Meteorological record for May 22, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. foot.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Comm'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.64	50	46	23.59	46	46	100	S. W.	16	1.28	....	Nimbus...	4-4	Hidden	....	.....	12.23 a. m.	.....	0.3	....	Light rain.
	2 0 a. m.	23.64	50	46	23.59	46	46	100	W.	20	2.00	....	Fog.....	....	Hidden	....	.....	.....	1.45 a. m.	0.4	....	Foggy.
	3 0 a. m.	23.64	50	46	23.59	46	46	100	W.	12	.72	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 0 a. m.	23.63	50	47	23.58	47	47	100	W.	12	.72	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy; distant thunder-storm in S.
	5 0 a. m.	23.64	50	45	23.59	45	45	100	W.	16	1.28	....	Fog.....	....	Hidden	....	.....	.....	.....	.09	....	Foggy.
	6 0 a. m.	23.65	51	45	23.59	45	45	100	N. W.	5	.12	....	Nimbus...	4-4	Hidden	....	.....	5.40 a. m.	.....	.05	....	Light rain.
	7 14 a. m.	23.66	50	46	23.61	46	46	100	W.	11	.60	....	Fog.....	....	Hidden	....	.....	.....	7.01 a. m.	.....	....	Foggy.
	8 0 a. m.	23.67	51	47	23.61	47	47	100	N. W.	12	.72	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.68	55	51	23.62	51	50	93	N. W.	11	.60	....	Fog.....	....	Cumulus	1-4	W.	.....	.....	.....	....	Foggy.
	10 0 a. m.	23.69	55	53	23.63	53	51	86	N. W.	6	.18	....	Hazy.....	....	Cumulus	3-4	W.	.....	.....	.....	....	Cloudy.
	11 0 a. m.	23.70	55	54	23.64	54	51	80	N. W.	4	.08	....	Stratus ...	1-4	Cumulus	2-4	N. W.	.....	.....	.....	....	Cloudy.
	12 0 a. m.	23.70	55	57	23.65	57	55	87	N. W.	4	.08	....	Hazy.....	....	Cumulus	4-4	W.	.....	.....	.....	....	Cloudy.
	1 0 p. m.	23.72	61	60	23.64	60	56	76	N. W.	4	.08	....	Hazy.....	....	Cumulus	4-4	N. W.	.....	.....	.....	....	Cloudy.
	2 0 p. m.	23.72	64	60	23.64	60	56	76	N. W.	12	.72	....	0	0	Cumulus	2-4	N. W.	.....	.....	.....	....	Fair.
	3 0 p. m.	23.72	64	58	23.64	58	54	76	N. W.	8	.32	....	0	0	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	4 14 p. m.	23.73	66	61	23.64	61	55	66	N. W.	12	.72	....	Hazy.....	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Fair.
	5 0 p. m.	23.72	65	58	23.63	58	53	70	N. W.	9	.40	....	Hazy.....	....	Cumulus	1-4	W.	.....	.....	.....	....	Fair.
	6 0 p. m.	23.71	63	57	23.63	57	54	81	N. W.	8	.32	....	Hazy.....	....	Cirrus ..	1-4	W.	.....	.....	.....	....	Fair.
	7 0 p. m.	23.75	61	52	23.67	52	47	66	N. E.	12	.72	....	Hazy.....	....	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	8 0 p. m.	23.73	60	52	23.65	52	47	66	N. E.	12	.72	....	Hazy.....	....	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	9 0 p. m.	23.72	58	52	23.65	52	47	66	N. E.	18	1.62	....	Hazy.....	....	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	10 0 p. m.	23.71	57	52	23.64	52	45	53	N.E.	12	.72	....	Hazy.....	....	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	10 39 p. m.	23.71	56	52	23.64	52	45	53	N.	10	.50	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	12 0 p. m.	23.71	57	51	23.64	51	47	72	N. W.	6	.18	....	0	0	0	0	0	.....	.....	.....	52.0	Clear.
Knoxville, Tenn.	7 0 a. m.	29.11	72	66	28.987	65	64	94	S.	6	.18	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	7 7 a. m.	29.11	72	66	28.987	65	64	94	S.	6	.18	....	Stratus ...	4-4	Hidden	....	.....	In night	In night	.13	....	Cloudy.
	11 33 a. m.	29.13	76	74	28.997	73	66	67	S.	12	.72	149	0	0	Cumulus	2-4	W.	.....	.....	.....	....	Clearing.
	2 0 p. m.	29.09	78	79	28.952	78	68	57	S. W.	4	.08	....	0	0	Cirrus ..	1-4	S. W.	.....	.....	.....	....	Clear.
	4 7 p. m.	29.08	79	82	28.939	81	69	52	S. W.	4	.08	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	9 0 p. m.	29.08	76	72	28.947	71	68	85	S.	2	.02	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	10 32 p. m.	29.06	75	69	28.930	68	66	92	S. E.	2	.02	....	0	0	0	0	0	.....	.....	.....	....	Clear.

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Meteorological record for May 23, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.69	55	49	23.63	49	46	78	W.	6	.18	....	0	0	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	2 0 a. m.	23.69	55	50	23.63	50	45	65	W.	8	.32	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	3 0 a. m.	23.69	55	50	23.63	50	45	65	W.	8	.32	....	0	0	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	4 0 a. m.	23.69	54	50	23.63	50	49	93	N. W.	12	.72	....	0	0	Cirrus	2-4	0	.....	.....	.....	....	Fair.
	5 0 a. m.	23.69	52	50	23.63	50	50	100	W.	18	1.62	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 a. m.	23.69	56	50	23.62	50	50	100	W.	24	2.88	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	23.70	59	51	23.63	51	51	100	W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 a. m.	23.71	60	53	23.63	53	53	100	W.	28	3.92	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.72	59	51	23.65	51	51	100	N. W.	20	2.00	....	Fog	....	Cumulus	2-4	W.	8.30 a. m.	8.50 a. m.	.05	....	Fair.
	10 0 a. m.	23.72	59	55	23.65	55	52	80	N. W.	12	.72	....	Hazy	....	Cirrus	3-4	.....	.....	.....	.....	....	Cloudy.
	11 0 a. m.	23.72	63	62	23.64	62	53	51	N. W.	12	.72	....	Hazy	....	Cirrus	1-4	.....	.....	.....	.....	....	Fair.
	12 0 m ..	23.73	67	64	23.64	64	54	48	N. W.	16	1.28	295	Hazy	....	Cirrus	1-4	.....	.....	.....	.....	....	Fair.
	1 0 p. m.	23.75	66	66	23.66	66	55	45	N. W.	12	.72	....	Hazy	....	Cir. & cu.	3-4	N. W.	.....	.....	.....	....	Fair.
	2 0 p. m.	23.74	65	66	23.65	66	55	45	N. W.	12	.72	....	Hazy	....	Cir. & cu.	2-4	N. W.	.....	.....	.....	....	Fair.
	3 0 p. m.	23.74	71	68	23.64	66	55	45	N. W.	12	.72	....	Hazy	....	Cir. & cu.	2-4	N. W.	.....	.....	.....	....	Fair.
	4 14 p. m.	23.74	72	64	23.64	64	54	48	N.	16	1.28	....	Hazy	....	Cir. & cu.	2-4	W.	.....	.....	.....	....	Fair.
	5 0 p. m.	23.73	71	65	23.63	65	55	49	N. W.	12	.72	....	Hazy	....	Cir. & cu.	2-4	N. W.	.....	.....	.....	....	Fair.
	6 0 p. m.	23.72	68	64	23.63	64	54	48	N. W.	8	.32	....	Hazy	....	Cir. & cu.	2-4	N. W.	.....	.....	.....	....	Fair.
	7 0 p. m.	23.71	63	57	23.63	57	53	75	N. W.	8	.32	....	Hazy	....	Cir. & cu.	3-4	N. W.	.....	.....	.....	....	Cloudy.
	8 0 p. m.	23.71	64	55	23.63	55	53	87	N. W.	8	.32	....	Hazy	....	Cir. & cu.	3-4	N. W.	.....	.....	.....	....	Cloudy; heat-light'ng in S. and E. horizon.
	9 0 p. m.	23.71	62	55	23.63	55	52	80	N.	8	.32	....	0	0	Cir. & cu.	2-4	.....	.....	.....	.....	....	Fair; heat-lightning in S. and W. horizon.
	10 0 p. m.	23.71	59	55	23.64	55	53	87	N.W.	14	.98	....	Light fog	....	Cumulus	2-4	.....	.....	.....	.....	....	Fair; heat-lightning in W. horizon.
	10 39 p. m.	23.70	59	55	23.63	55	53	87	N.W.	12	.72	....	Light fog	....	Cumulus	2-4	.....	.....	.....	.....	....	Do.
	12 0 p. m.	23.69	59	54	23.62	54	52	87	N. W.	12	.72	....	0	0	Cumulus	2-4	.....	.....	.....	.....	56.5	Do.
Knoxville, Tenn.	7 0 a. m.	29.15	72	67	29.027	66	63	84	S.	7	.24	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	7 7 a. m.	29.15	72	67	29.027	66	63	84	S.	7	.24	....	Stratus	4-4	Hidden	....	.....	6.45 a. m.	7.00 a. m.	.01	....	Cloudy.
	11 24 a. m.	29.10	77	77	28.964	76	66	56	N. W.	7	.24	88	0	0	Cirrus	3-4	0	.....	.....	.....	....	Fair.
	2 0 p. m.	29.07	81	83	28.924	82	70	52	S. W.	12	.72	....	0	0	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	4 7 p. m.	29.04	81	86	28.894	85	72	51	S. W.	12	.72	....	0	0	Cirrus	2-4	0	.....	.....	.....	....	Fair.
	9 0 p. m.	29.02	78	77	28.879	76	66	58	W.	20	2.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	10 39 p. m.	29.00	77	70	28.854	69	63	70	S. W.	20	2.0	..	Stratus	4-4	Hidden	....	.....	11.10 p. m.	.....	.....	....	Threatening.

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Meteorological record for May 24, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM Dry bulb.	HYGROM Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.68	56	54	23.61	54	53	93	W.	17	1.44	....	Fog	.....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	2 0 a. m.	23.66	55	54	23.60	54	53	93	W.	28	3.92	....	Fog	.....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	3 0 a. m.	23.65	54	50	23.59	50	49.5	96	N. W.	20	2.00	....	Fog	.....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	4 0 a. m.	23.63	54	50	23.57	50	48	86	W.	20	2.00	....	0	0	Cir. & cu	3-4	.....	.....	.....	.....	.....	Cloudy.
	5 0 a. m.	23.64	55	53	23.58	53	48	67	W.	16	1.28	...	0	0	Cir. & cu	3-4	.....	.....	.....	.....	.....	Cloudy.
	6 0 a. m.	23.64	55	56	23.58	56	48	51	W.	20	2.00	....	Hazy	.....	Cirrus	2-4	.....	.....	.....	.....	.....	Fair.
	7 14 a. m.	23.65	56	57	23.58	57	50	58	W.	12	.72	....	Hazy	.....	Cir. & cu	2-4	N. W.	.....	.....	.....	.....	Fair.
	8 0 a. m.	23.66	56	57	23.59	57	49	52	W.	12	.72	...	Hazy	.....	Cirrus	1-4	.....	.....	.....	.....	.....	Fair.
	9 0 a. m.	23.66	59	61	23.59	61	53	55	N. W.	8	.32	....	Hazy	.....	Cirrus	1-4	N. W.	.....	.....	.....	.....	Fair.
	10 0 a. m.	23.67	60	59	23.60	59	53	65	N. W.	8	.32	....	Hazy	.....	Cir. & cu	3-4	W.	.....	.....	.....	.....	Cloudy.
	11 0 a. m.	23.67	60	58	23.60	58	52	64	N. W.	12	.72	....	Hazy	.....	Cir. & cu	4-4	W.	.....	.....	.....	.....	Cloudy.
	12 0 m.	23.67	60	60	23.60	60	52	55	N. W.	12	.72	310	Hazy	.....	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	1 0 p. m.	23.67	61	62	23.59	62	53	51	W.	8	.32	....	Hazy	.....	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	2 0 p. m.	23.67	63	62	23.59	62	54	56	W.	8	.32	....	Hazy	.....	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	3 0 p. m.	23.67	65	64	23.58	64	55	53	N. W.	8	.32	....	Hazy	.....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	4 14 p. m.	23.67	66	61	23.58	61	54	61	S. W.	12	.72	....	Hazy	.....	Cumulus	2-4	N. W.	.....	.....	.....	.....	Fair.
	5 0 p. m.	23.65	65	58	23.56	58	52	64	N.	14	.98	....	Hazy	.....	Cumulus	3-4	N.	.....	.....	.....	.....	Fair.
	6 0 p. m.	23.66	63	58	23.58	58	52	64	N. W.	8	.32	....	Hazy	.....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Fair.
	7 0 p. m.	23.64	56	54	23.57	54	50	74	N. E.	18	1.62	....	Hazy	.....	Cirrus	2-4	N. E.	.....	.....	.....	.....	Fair.
	8 0 p. m.	23.64	56	52	23.57	52	50	86	N. E.	24	2.88	....	Hazy	.....	Cirrus	2-4	N. E.	.....	.....	.....	.....	Fair.
	9 0 p. m.	23.66	56	53	23.59	53	51	86	N. E.	24	2.88	....	Hazy	.....	Cir. & cu	2-4	N. E.	.....	.....	.....	.....	Fair; heat-lightning in W. horizon.
	10 0 p. m.	23.67	56	53	23.60	53	50	80	N. E.	16	1.28	....	0	0	Cirrus	1-4	.....	.....	.....	.....	.....	Fair.
	10 39 p. m.	23.68	56	52	23.62	52	50	86	N. E.	12	.72	....	Light fog	.....	0	0	0	.....	.....	.....	.....	Fair.
	12 0 p. m.	23.68	56	52	23.62	52	50	86	N. E.	12	.72	....	Light fog	.....	0	0	0	.....	.....	.....	56.2	Fair.
Knoxville, Tenn.	7 0 a. m.	29.05	74	67	28.922	66	64	84	W.	3	.04	....	0	0	Cumulus	3-4	0	.....	.....	.....	.....	Clearing.
	7 7 a. m.	29.05	74	67	28.922	66	64	84	W.	3	.04	....	0	0	Cumulus	3-4	0	.....	In night	.19	.....	Clearing.
	11 32 a. m.	29.08	78	76	28.942	75	68	68	S. E.	4	.08	172	0	0	Cu. & cir	2-4	N. W.	.....	.....	.....	.....	Fair.
	2 0 p. m	29.05	80	80	28.937	79	70	60	N. E.	4	.08	....	0	0	Cu. & cir	4-4	0	.....	.....	.....	.....	Fair.
	1 7 p. m.	29.04	81	82	28.894	81	70	53	E.	4	.08	....	0	0	Cirrus	4-4	0	.....	.....	.....	.....	Fair.
	9 0 p. m.	29.01	78	74	28.875	73	70	85	N. E.	4	.08	....	0	0	Hazy	...	.....	.....	.....	.....	.....	Fair.
	10 32 p. m.	29.03	78	71	28.892	70	67	84	E.	3	.04	....	0	0	0	0	0	.....	.....	.....	.....	Clear.

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Meteorological record for May 25, 1873.

(Hourly observation.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Comm'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.67	55	52	23.61	52	48	73	N. E.	14	.98	....	0	0	Cirrus...	1-4	N. E.	.....	.....	.....	.....	Fair.
	2 0 a. m.	23.66	53	51	23.60	51	49	86	N. E.	16	1.28	....	0	0	Cirrus...	2-4	.....	.....	.....	.....	.....	Fair.
	3 0 a. m.	23.65	53	51	23.59	51	47	72	N. E.	20	2.00	....	0	0	Cirrus...	2-4	.....	.....	.....	.....	.....	Fair.
	4 0 a. m.	23.64	54	50	23.57	50	46	72	N. E.	20	2.00	....	0	0	Cirrus...	1-4	N. E.	.....	.....	.....	.....	Fair.
	5 0 a. m.	23.65	54	54	23.59	54	49	67	N. E.	16	1.28	....	0	0	Cirrus...	1-4	.....	.....	.....	.....	.....	Fair.
	6 0 a. m.	23.66	56	56	23.59	56	50	63	N. E.	12	.72	....	Hazy....	....	Cirrus...	1-4	0	.....	.....	.....	.....	Fair.
	7 14 a. m.	23.67	57	59	23.60	59	52	59	N. E.	12	.72	....	Hazy....	....	Cirrus...	2-4	0	.....	.....	.....	.....	Fair.
	8 0 a. m.	23.69	60	60	23.62	60	54	65	N. E.	8	.32	....	Hazy....	....	Cirrus...	1-4	N. W.	.....	.....	.....	.....	Fair.
	9 0 a. m.	23.71	63	60	23.63	60	54	65	E.	5	.12	....	Hazy....	....	Cirrus...	2-4	N. W.	.....	.....	.....	.....	Fair.
	10 0 a. m.	23.73	66	64	23.64	64	55	53	N. E.	8	.32	....	Hazy....	....	Cumulus.	2-4	N.	.....	.....	.....	.....	Fair.
	11 0 a. m.	23.74	67	62	23.65	62	56	66	E.	8	.32	....	Hazy....	....	Cumulus.	4-4	S. E.	.....	.....	.....	.....	Cloudy.
	12 0 m...	23.73	64	58	23.65	58	55	82	E.	3	.04	397	Nimbus.	3-4	Cumulus.	1-4	0	11.40 a. m.	.....	.04	....	Heavy rain, thunder-storm, and hail.
	1 0 p. m.	23.71	60	55	23.63	55	52	80	E.	8	.32	....	Hazy....	....	Cumulus.	3-4	0	.....	.....	.43	....	Light rain.
	2 0 p. m.	23.72	63	60	23.64	60	55	71	N. E.	4	.08	....	Hazy....	....	Cumulus.	3-4	N. W.	.....	1.05 p. m.	.....	....	Cloudy.
	3 0 p. m.	23.71	61	55	23.63	55	53	87	N. W.	2	.02	....	Light fog	....	Cumulus.	3-4	N. W.	.....	.....	.....	....	Cloudy; dist't thunder-storm in S. W. and E.
	4 14 p. m.	23.70	65	58	23.61	58	52	64	N. E.	2	.02	....	Hazy....	....	Cumulus.	3-4	N. E.	.....	.....	.....	....	Cloudy; thunder-storm in S. W. and W.
	5 0 p. m.	23.71	64	54	23.63	54	48	61	N. E.	4	.08	....	Hazy....	....	Cumulus.	3-4	0	.....	.....	.....	....	Cloudy.
	6 0 p. m.	23.70	62	56	23.62	56	52	75	S. E.	6	.18	....	Hazy....	....	Cumulus.	3-4	N. E.	.....	.....	.....	....	Cloudy.
	7 0 p. m.	23.69	61	54	23.61	54	51	80	S. E.	6	.18	....	Hazy....	....	Cumulus.	3-4	N. E.	.....	.....	.....	....	Cloudy.
	8 0 p. m.	23.70	61	52	23.62	52	51	93	S. E.	10	.50	....	Hazy....	....	Cumulus.	4-4	0	.....	.....	.....	....	Cloudy.
	9 0 p. m.	23.71	61	52	23.63	52	49	79	S. E.	12	.72	....	0	0	Cumulus.	3-4	0	.....	.....	.....	....	Cloudy.
	10 0 p. m.	23.72	59	51	23.65	51	49	86	S. E.	8	.32	....	0	0	Cumulus.	2-4	0	.....	.....	.....	....	Fair.
	10 39 p. m.	23.71	58	51	23.64	51	50	93	S. E.	12	.72	....	0	0	Cumulus.	2-4	0	.....	.....	.....	....	Fair.
	12 0 p. m.	23.70	57	52	23.63	52	51.5	96	E.	12	.72	....	Fog.....	....	Hidden..	.....	.....	.....	.....	.....	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.06	75	68	28.930	65	62	83	E.	4	.08	....	0	0	Cirrus...	1-4	0	.....	.....	.....	....	Fair.
	7 7 a. m.	29.06	75	66	28.930	65	62	83	E.	4	.08	71	0	0	Cirrus...	1-4	0	.....	.....	.....	....	Fair.
	11 30 a. m.	29.07	81	81	28.924	80	70	58	S. E.	3	.04	....	0	0	Cu. & cir.	1-4	0	.....	.....	.....	....	Fair.
	2 0 p. m.	29.03	83	86	28.879	85	69	40	N. W.	4	.08	....	0	0	Cu. & cir.	1-4	0	.....	.....	.....	....	Fair.
	4 7 p. m.	29.01	83	87	28.859	86	70	41	W.	10	.50	....	0	0	Cu. & cir.	4-4	0	.....	.....	.....	....	Cloudy.
	9 0 p. m.	29.04	79	74	28.899	73	66	67	0	0	0	....	Stratus..	2-4	0	0	0	.....	.....	.....	....	Fair.
	10 32 p. m.	29.04	77	70	28.904	69	64	75	N. W.	8	.32	....	0	0	0	0	0	.....	.....	.....	....	Clear.

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Meteorological record for May 26, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Comm'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer; daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23. 70	57	53	23. 63	53	52. 5	96	S. E.	12	.72	...	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 a. m.	23. 69	56	52	23. 62	52	52	100	S. E.	18	1. 62	...	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3 0 a. m.	23. 68	54	52	23. 62	52	52	100	S. E.	20	2 00	..	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 0 a. m.	23. 68	53	50	23. 62	50	50	100	S. E.	18	1. 62	...	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 a. m.	23. 69	55	51	23. 63	51	51	100	S. E.	10	.50	...	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 a. m.	23. 70	56	52	23. 63	52	52	100	S. E.	12	.72	...	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	23. 71	55	53	23. 65	53	53	100	S.	8	.32	...	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 a. m.	23. 72	56	55	23. 65	55	54	93	S. W.	8	.32	...	Nimbus...	4-4	Hidden	....	.....	7 25 a. m.	.....	.14	....	Heavy rain.
	9 0 a. m.	23. 73	57	57	23. 66	57	55	87	S. W.	8	.32	...	Fog	....	Hidden	....	.....	.....	.....	.03	....	Light rain.
	10 0 a. m.	23. 74	59	56	23. 67	56	55	93	E.	8	.32	...	Fog	....	Hidden	....	.....	.....	9 10 a. m	.....	....	F ggy.
	11 0 a. m.	23. 74	59	60	23. 67	60	58	88	S. E.	4	.08	...	Fog	....	Cumulus	3-4	0	.....	.....	.....	....	Cloudy.
	12 0 m ..	23. 74	60	62	23. 66	62	59	83	S. E.	8	.32	226	Fog	....	Hidden	....	.....	11 20 a. m.	11 25 a. m.	Blk	....	Foggy.
	1 0 p. m.	23. 73	59	61	23. 66	61	60	94	S. E.	8	.72	...	Fog	....	Hidden	....	.....	12 20 p. m.	.....	.17	....	Light rain; thunder-storm from S. W.
	2 0 p. m.	23. 71	55	53	23. 65	53	51	86	S. W.	12	.72	...	Nimbus...	2-4	Cumulus	2-4	N. W.	.....	1 06 p. m.	.....	....	Light rain; thunder-storm from S. W.
	3 0 p. m.	23. 71	56	55	23. 64	55	54	93	S. E.	12	.72	...	Fog	....	Cumulus	1-4	0	1 35 p. m.	2 10 p. m.	.08	....	Cloudy.
	4 14 p. m.	23. 71	55	55	23. 65	55	54	93	S. W.	12	.72	...	Fog	....	Cumulus	3-4	0	.....	.....	.....	....	Cloudy.
	5 0 p. m.	23. 72	58	57	23. 65	57	56	94	S.	12	.72	...	Fog	....	Cumulus	3-4	0	.....	.....	.....	....	Cloudy.
	6 0 p. m.	23. 74	59	55	23. 67	55	54	93	E.	8	.32	...	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 0 p. m.	23. 72	60	54	23. 64	54	53	93	S.	8	.32	...	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 p. m.	23. 71	60	53	23. 63	53	53	100	S. E.	14	.98	...	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 p. m.	23. 73	61	53	23. 65	53	52	93	S. E.	12	.72	...	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 p. m.	23. 75	60	53	23. 67	53	52	93	E.	8	.32	...	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 39 p. m.	23. 74	59	52	23. 67	52	52	100	S. W.	18	1. 62	...	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	12 0 p. m.	23. 73	56	52	23. 66	52	52	100	S. W.	18	1. 62	...	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29. 11	77	65	28. 974	64	62	89	E.	2	.02	...	Stratus ...	1-4	Cirrus ..	3-4	0	.....	.....	.....	....	Cloudy.
	7 7 a. m.	29. 11	77	65	28. 974	64	62	89	E.	2	.02	...	Stratus ...	1-4	Cirrus ..	3-4	0	.....	.....	.....	....	Cloudy.
	11 32 a. m.	29. 11	79	79	28. 969	78	68	56	W.	4	.08	107	0	0	0	0	0	.....	.....	.....	....	Clear.
	2 0 p. m.	29. 05	82	86	28. 902	85	68	39	S. W.	8	.32	...	0	0	Cir. & Cu	1-4	0	.....	.....	.....	....	Fair.
	4 7 p. m.	29. 04	83	87	28. 889	86	70	41	W.	8	.32	...	0	0	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	9 0 p. m.	29. 06	80	78	28. 917	77	70	69	E.	2	.02	...	Stratus ...	1-4	0	0	0	.....	.....	.....	....	Fair.
	10 32 p. m.	29. 07	80	75	28. 927	74	69	78	N. E.	3	.04	...	Stratus ...	2-4	0	0	0	11 30 p. m.	11 40 p. m.	.07	....	Fair.

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Meteorological record for May 27, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.72	56	52	23.65	52	51	93	S. W.	22	2.42	....	Fog	....	0	0	0	.....	.....	.....	....	Foggy.
	2 0 a. m.	23.70	55	52	23.64	52	52	100	S. W.	24	2.88	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3 0 a. m.	23.70	55	52	23.64	52	52	100	S. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 0 a. m.	23.70	55	51	23.64	51	51	100	S.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 a. m.	23.71	54	53	23.65	53	51	86	S. W.	26	3.38	....	Light fog	....	Cirrus	3-4	0	.....	.....	.....	....	Cloudy.
	6 0 a. m.	23.71	52	54	23.65	54	52	87	S. W.	20	2.00	....	Hazy	....	Cirrus	2-4	0	.....	.....	.....	....	Fair.
	7 14 a. m.	23.71	53	55	23.65	55	52	80	S. W.	12	.72	....	Hazy	....	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	8 0 a. m.	23.72	54	55	23.66	55	52	80	S. W.	20	2.00	....	Hazy	....	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	9 0 a. m.	23.73	56	57	23.66	57	53	75	S. W.	20	2.00	....	Hazy	....	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	10 0 a. m.	23.74	60	64	23.66	64	58	67	W.	8	.32	....	0	0	Cumulus	1-4	S. W.	.....	.....	.....	....	Fair.
	11 0 a. m.	23.75	61	62	23.67	62	57	72	N. W.	4	.08	....	Hazy	....	Cumulus	3-4	S.	.....	.....	.....	....	Fair.
	12 0 p. m.	23.74	62	68	23.66	68	59	56	S. W.	4	.08	330	Hazy	....	Cumulus	3-4	W.	.....	.....	.....	....	Fair.
	1 0 p. m.	23.74	63	63	23.66	63	58	72	S. E.	4	.08	....	Fog	....	Cumulus	2-4	0	.....	.....	.....	....	Cloudy.
	2 0 p. m.	23.72	60	56	23.64	56	55	93	S. W.	4	.08	....	Nimbus	3-4	Cumulus	1-4	0	1.35 p. m.	.....	.34	....	Heavy rain; thunder-storm and hail.
	3 0 p. m.	23.71	62	59	23.63	59	57	88	S. E.	8	.32	....	Fog	....	Hidden	....	.....	.....	2.20 p. m.	.18	....	Foggy.
	4 14 p. m.	23.70	64	60	23.62	60	57	82	S. E.	12	.72	....	Hazy	....	Cumulus	3-4	S. W.	.....	.....	.....	....	Cloudy.
	5 0 p. m.	23.69	62	57	23.61	57	54	81	S. W.	12	.72	....	Hazy	....	Cumulus	1-4	S. W.	.....	.....	.....	....	Fair.
	6 0 p. m.	23.69	58	55	23.62	55	53	87	S. W.	16	1.28	....	Hazy	....	Cir-cum	2-4	S.	.....	.....	.....	....	Fair.
	7 0 p. m.	23.69	58	53	23.62	53	52	93	S. W.	26	3.38	....	Hazy	....	Cir-cum	4-4	S. W.	.....	.....	.....	....	Cloudy.
	8 0 p. m.	23.69	59	53	23.62	53	52	93	S. W.	26	3.38	....	Light fog	....	Cir-cum	3-4	S. W.	.....	.....	.....	....	Cloudy.
	9 0 p. m.	23.69	59	52	23.62	52	51	93	S. W.	28	3.92	....	0	0	Cir-cum	2-4	S. W.	.....	.....	.....	....	Fair.
	10 0 p. m.	23.70	60	51	23.62	51	50	93	S. W.	32	5.12	....	Light fog	....	Cirrus	1-4	W.	.....	.....	.....	....	Fair.
	10 39 p. m.	23.70	59	51	23.63	51	50	93	S. W.	32	5.12	....	0	0	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	12 0 p. m.	23.68	59	50	23.61	50	49	93	S. W.	16	1.28	....	0	0	Cirrus	1-4	0	.....	.....	.....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.12	79	69	28.979	68	66	90	E.	2	.02	....	0	0	Cumulus	3-4	S. W.	.....	.....	.....	....	Clearing.
	7 7 a. m.	29.12	79	69	28.979	68	66	90	E.	2	.02	....	0	0	Cumulus	3-4	S. W.	.....	.....	.....	....	Clearing.
	11 32 a. m.	29.11	81	83	28.964	82	69	49	S. W.	12	.72	109	0	0	Cumulus	3-4	S. W.	.....	.....	.....	....	Fair.
	2 0 p. m.	29.04	83	84	28.944	84	70	51	S.	10	.50	....	Hazy	....	Cumulus	1-4	0	.....	.....	.....	....	Fair.
	4 7 p. m.	29.02	85	87	28.864	86	67	33	S. W.	20	2.00	....	0	0	Cumulus	4-4	S. W.	.....	.....	.....	....	Cloudy.
	9 0 p. m.	29.07	79	71	28.929	70	66	79	S. E.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	10 39 p. m.	29.07	78	70	28.932	69	64	77	S. W.	7	.24	....	Stratus	1-4	0	0	0	7.30 p. m.	7.45 p. m.	.02	....	Fair.

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Meteorological record for May 28, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.66	57	50	23.59	50	49	93	S. W.	26	3.38	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	2 0 a. m.	23.65	57	50	23.58	50	49	93	S. W.	26	3.38	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	3 0 a. m.	23.65	57	49	23.58	49	49	100	S. W.	28	3.92	....	Fog.....	....	Cumulus	3-4	W.	.....	.....	.....	....	Cloudy.
	4 0 a. m.	23.65	57	49	23.58	49	49	100	W.	16	1.28	....	Fog.....	....	Hidden	....	.....	3.30 a. m.	4.15 a. m.	.03	....	Light rain.
	5 0 a. m.	23.67	59	48	23.60	48	47	92	W.	24	2.88	....	Hazy	....	Cir., cum.	2-4	0	.....	.....	.....	....	Fair.
	6 0 a. m.	23.69	57	50	23.62	50	49	93	N. W.	12	.72	....	Hazy	....	Cir., cum.	2-4	S. W.	.....	.....	.....	....	Fair.
	7 14 a. m.	23.71	61	51	23.63	51	50	93	N. W.	16	1.28	....	Hazy	....	Cir., cum.	4-4	N. W.	.....	.....	.....	....	Cloudy.
	8 0 a. m.	23.72	61	52	23.64	52	51	93	N. W.	12	.72	....	Fog.....	....	Cirrus ..	2-4	0	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.74	64	54	23.66	54	52	87	N. W.	14	.98	....	Hazy	....	Cir., cum.	2-4	N. W.	.....	.....	.....	....	Fair.
	10 0 a. m.	23.75	62	59	23.67	59	52	59	N. W.	6	.18	....	Hazy	....	Cir., cum.	2-4	N. W.	.....	.....	.....	....	Fair.
	11 0 a. m.	23.75	63	60	23.67	60	53	60	N. W.	12	.72	....	Hazy	....	Cir., cum.	2-4	N. W.	.....	.....	.....	....	Fair.
	12 0 m.	23.76	64	61	23.68	61	54	61	N. W.	8	.32	414	Hazy	....	Cumulus	2-4	W.	.....	.....	.....	....	Fair.
	1 0 p. m.	23.75	64	62	23.67	62	55	61	N. W.	8	.32	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	2 0 p. m.	23.73	62	61	23.65	61	54	61	N. W.	6	.18	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	3 0 p. m.	23.73	62	60	23.65	60	54	65	N. W.	4	.08	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	.....	....	Cloudy.
	4 14 p. m.	23.72	63	60	23.64	60	54	65	N. W.	6	.18	....	Hazy	....	Cir., cum.	3-4	N. W.	.....	.....	.....	....	Cloudy.
	5 0 p. m.	23.74	64	57	23.66	57	53	75	N. W.	4	.08	....	Hazy	....	Cir., cum.	4-4	N. W.	.....	.....	.....	....	Cloudy.
	6 0 p. m.	23.73	60	53	23.65	53	50	80	N. W.	8	.32	....	Hazy	....	Cumulus	4-4	N. W.	5.40 p. m.	5.55 p. m.	.01	....	Cloudy.
	7 0 p. m.	23.74	59	52	23.67	52	50	86	W.	8	.32	....	0	0	Cumulus	3-4	W.	.....	.....	.....	....	Cloudy.
	8 0 p. m.	23.74	63	50	23.66	50	48	86	W.	12	.72	....	Nimbus...	2-4	Cumulus	2-4	N. W.	.....	.....	.....	....	Cloudy.
	9 0 p. m.	23.75	63	51	23.67	51	46	65	N. W.	10	.50	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	10 0 p. m.	23.76	60	51	23.68	51	46	65	N. W.	8	.32	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	10 39 p. m.	23.75	59	51	23.68	51	47	72	N. W.	8	.32	....	0	0	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	12 0 p. m.	23.75	59	51	23.68	51	47	72	W.	4	.08	....	0	0	Cumulus	3-4	0	.....	.....	.....	....	Cloudy.
Knoxville, Tenn.	7 0 a. m.	29.14	75	68	29.010	67	64	84	W.	2	.02	....	0	0	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	7 7 p. m.	29.14	75	68	29.010	67	64	84	W.	2	.02	....	0	0	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	11 32 a. m.	29.16	81	77	29.014	76	66	56	E.	4	.08	176	0	0	Cumulus	4-4	S. W.	.....	.....	.....	....	Cloudy.
	2 0 p. m.	29.12	81	78	28.974	77	66	51	N. W.	5	.12	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	4 7 p. m.	29.11	81	77	28.965	76	67	60	W.	4	.08	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	9 0 p. m.	29.14	77	72	29.004	71	67	80	E.	4	.08	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	10 32 p. m.	29.13	77	71	28.994	70	67	84	S. E.	2	.02	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.

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Meteorological record for May 29, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.74	59	52	23.67	52	48	73	N. W.	8	.32	....	0	0	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	2 0 a. m.	23.73	57	52	23.66	52	48	73	N. W.	10	.50	....	Nimbus...	4-4	Hidden..	.....	.....	1.55 a.m.	.....	.....	....	Light rain.
	3 0 a. m.	23.73	56	49	23.66	49	48	93	S. W.	12	.72	....	Nimbus...	4-4	Hidden..	.....	.....	.....	.....	.07	....	Light rain.
	4 0 a. m.	23.72	54	49	23.66	49	48	93	S. W.	16	1.28	....	Stratus ...	3-4	Hidden..	.....	.....	.....	3.45 a.m.	.05	....	Cloudy.
	5 0 a. m.	23.73	55	49	23.67	49	48	93	S. E.	6	.18	....	Nimbus...	3 4	Hidden..	.....	.....	4.20 a.m.	.....	.02	....	Light rain.
	6 0 a. m.	23.74	55	50	23.68	50	50	100	S. E.	10	.50	....	Nimbus...	4-4	Hidden..	.....	.....	.....	.....	.11	....	Light rain.
	7 14 a. m.	23.74	54	50	23.68	50	50	100	S. W.	8	.32	....	Dense fog	....	Hidden..	.....	.....	.....	.....	.12	....	Light rain.
	8 0 a. m.	23.75	54	51	23.69	51	51	100	W.	12	.72	....	Dense fog	....	Hidden..	.....	.....	.....	.....	.15	....	Heavy rain.
	9 0 a. m.	23.75	54	53	23.69	53	53	100	W.	28	3.92	....	Dense fog	....	Hidden..	.....	.....	.....	.....	.34	....	Heavy rain.
	10 0 a. m.	23.76	54	54	23.70	54	53	93	W.	20	2.00	....	Dense fog	....	Hidden..	.....	.....	.....	.....	.29	....	Heavy rain.
	11 0 a. m.	23.77	54	56	23.71	56	54	87	W.	12	.72	....	Stratus ...	1-4	Cir.,cum.	2-4	S. W.	.....	10.15 a.m.	.05	....	Cloudy.
	12 0 m ..	23.77	57	56	23.70	56	53	81	S. W.	12	.72	216	Stratus ...	1-4	Cir.,cum.	3-4	0	.....	.....	.....	....	Cloudy.
	1 0 p.m.	23.78	59	59	23.71	59	55	76	N. W.	8	.32	....	Hazy	....	Cir.,cum.	3-4	0	.....	.....	.....	....	Cloudy.
	2 0 p.m.	23.77	61	61	23.69	61	55	66	W.	8	.32	....	0	0	Cir.,cum.	3-4	W.	.....	.....	.....	....	Cloudy.
	3 0 p.m.	23.77	59	59	23.70	59	54	70	S. W.	12	.72	....	Nimbus...	1-4	Cumulus	3-4	S. W.	2.55 p.m.	.....	.....	....	Light rain.
	4 14 p.m.	23.76	56	57	23.69	57	53	75	S. W.	14	.98	....	Hazy	....	Cumulus	4-4	S. W.	.....	3.10 p.m.	.01	....	Cloudy.
	5 0 p.m.	23.74	58	59	23.67	59	56	82	S. W.	6	.18	....	Hazy	....	Cumulus	3-4	S. W.	.....	.....	.....	....	Cloudy.
	6 0 p.m.	23.75	58	54	23.68	54	53	93	S. W.	8	.32	....	0	0	Cir.,cum.	3-4	0	.....	.....	.....	....	Cloudy.
	7 0 p.m.	23.76	57	51	23.69	51	50	93	S. W.	8	.32	....	Stratus ...	1-4	Cirrus...	2-4	S. W.	.....	.....	.....	....	Cloudy.
	8 0 p.m.	23.78	63	51	23.69	51	50	93	S. W.	8	.32	....	Fog	....	Hidden..	.....	.....	.....	.....	.....	....	Foggy.
	9 0 p.m.	23.80	63	52	23.72	52	51	93	S. W.	8	.32	....	Fog	....	Hidden..	.....	.....	.....	.....	.....	....	Foggy.
	10 0 p.m.	24.80	64	52	23.72	52	51.5	96	S. W.	10	.50	....	Fog	....	Hidden..	.....	.....	.....	.....	.....	....	Foggy.
	10 39 p.m.	23.79	62	51	23.71	51	50.5	96	S. W.	12	.72	....	Fog	....	Hidden..	.....	.....	.....	.....	.....	....	Foggy.
	12 0 p. m.	23.78	60	51	23.70	51	50	93	S. W.	12	.72	....	0	0	Cumulus	3-4	S. W.	.....	.....	.....	....	Cloudy.
Knoxville, Tenn.	7 0 a. m.	29.17	76	66	29.037	65	64	94	S.	4	.08	....	Nimbus...	4-4	Hidden..	.....	.....	In night.	7.45 a.m.	.....	....	Light rain.
	7 07 a. m.	29.17	76	66	29.037	65	64	94	S.	4	.08	....	Nimbus ..	4-4	Hidden..	.....	.....	8.30 a.m.	10.30 a.m.	.37	....	Light rain.
	11 32 a. m.	29.10	77	72	29.054	71	67	70	E.	6	.18	113	Stratus ...	4-4	Hidden..	.....	.....	.....	.....	.....	....	Cloudy.
	2 0 p.m.	29.14	80	77	28.997	76	69	67	S.	6	.18	....	Nimbus...	4-4	Hidden..	.....	.....	.....	.....	.....	....	Threatening.
	4 7 p.m.	29.14	76	68	29.007	67	65	87	E.	2	.02	....	Nimbus...	4-4	Hidden..	.....	.....	3.00 p.m.	3.30 p.m.	.24	....	Light rain.
	9 0 p.m.	29.15	73	67	29.025	66	64	80	N. E.	3	.04	..	Stratus ...	1-4	0	0	0	.....	.....	.....	....	Clearing.
	10 32 p.m.	29.17	73	66	29.045	65	64	92	W.	6	.18	....	Stratus ...	4-4	0	0	0	4.15 p.m.	6.15 p.m.	.00	....	Cloudy.

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Meteorological record for May 30, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction (moving from)—	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.76	60	51	23.68	51	50	93	S. W.	16	1.28	....	0	0	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy.
	2 0 a. m.	23.76	60	51	23.68	51	50.5	96	S. E.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.75	58	50	23.68	50	49	93	S.	12	.72	....	Stratus ...	4-4	Hidden	....	.....	2.25 a. m.	2.40 a. m.	.02	....	Cloudy.
	4 0 a. m.	23.76	59	50	23.69	50	50	100	S. W.	12	.72	....	Fog	....	Cirrus ..	2-4	S. W.	.....	.....	....	....	Foggy.
	5 0 a. m.	23.76	59	50	23.69	50	49	93	S. W.	16	1.28	....	Fog in valley		Cir., cum	3-4	S. W.	.....	.....	....	....	Cloudy.
	6 0 a. m.	23.76	58	50	23.69	50	48	86	S. W.	12	.72	....	0	0	Cir., cum	3-4	S. W.	.....	.....	....	....	Cloudy.
	7 14 a. m.	23.76	56	52	23.69	52	49	79	W.	16	1.28	....	Hazy	....	Cir., cum	3-4	W.	.....	.....	....	....	Cloudy.
	8 0 a. m.	23.77	56	54	23.70	54	52	87	S. W.	12	.72	....	Hazy	....	Cir., cum	3-4	0	.....	.....	....	....	Cloudy.
	9 0 a. m.	23.78	57	55	23.71	55	52	80	N. W.	8	.32	....	Hazy	....	Cir., cum	3-4	S. W.	.....	.....	....	....	Cloudy.
	10 0 a. m.	23.79	60	59	23.71	59	55	76	W.	4	.08	....	Hazy	....	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.
	11 0 a. m.	23.80	61	55	23.72	55	53	87	N. W.	8	.32	....	Dense fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 m ..	23.80	61	56	23.72	56	53	81	N. W.	4	.08	220	Fog in valley		Cumulus	1-4	S. W.	.....	.....	....	....	Foggy; distant thunder-storm in N. W.
	1 0 p. m.	23.78	61	54	23.70	54	52	87	N. E.	4	.08	....	Dense fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 p. m.	23.77	60	54	23.69	54	52	87	N. W.	4	.08	....	Dense fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 p. m.	23.76	60	54	23.68	54	53	93	N. W.	4	08	....	Dense fog	....	Hidden	....	.....	.....	.....	....	....	Foggy; distant thunder-storm in N. E.
	4 14 p. m.	23.76	59	51	23.69	51	50	93	E.	4	.08	....	Nimbus...	4-4	Hidden	....	.....	3.20 p. m.	.....	.24	....	Heavy rain; distant thunder-st'rm in E.
	5 0 p. m.	23.76	58	50	23.69	50	49	93	N. E.	10	.50	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.07	....	Light rain.
	6 0 p. m.	23.75	61	51	23.67	51	49	86	N. E.	8	.32	....	Hazy	....	Cumulus	2-4	S. W.	.....	5.20 p. m.	.03	....	Fair.
	7 0 p. m.	23.74	55	50	23.68	50	49	93	N. E.	22	2.42	....	Hazy	....	Cir., cum	4-4	N. E.	.....	.....	....	....	Cloudy.
	8 0 p. m.	23.76	59	52	23.69	52	51.5	96	N. E.	18	1.62	....	Fog	....	Cirrus ..	2-4	0	.....	.....	....	....	Foggy.
	9 0 p. m.	23.78	61	53	23.70	53	53	100	N. E.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 p. m.	23.78	61	52	23.70	52	52	100	N E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 39 p. m.	23.78	60	52	23.70	52	52	100	N. E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 p. m.	23.77	62	50	23.69	50	49	93	N. E.	8	.32	....	0	0	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
Knoxville, Tenn	7 0 a. m.	29.19	73	68	29.065	67	65	87	E.	3	.04	....	Stratus ...	1-4	Cir.-cum	3-4	0	.....	.....	....	....	Cloudy.
	7 7 a. m.	29.19	73	68	29.065	67	65	87	E.	3	.04	....	Stratus ...	1-4	Cir.-cum	3-4	0	.....	.....	....	....	Cloudy.
	11 32 a. m.	29.20	77	76	29.064	75	70	76	E.	2	.02	102	0	0	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	2 0 p. m.	29.15	78	79	29.012	78	70	65	N. E.	2	.02	....	0	0	Cir.& cu.	2-4	0	.....	.....	....	....	Fair.
	4 7 p. m.	29.12	80	83	28.977	82	71	56	S.	4	.08	....	0	0	Cir.& cu.	2-4	0	.....	.....	....	....	Fair.
	9 0 p. m.	29.16	75	67	29.030	66	64	90	N. E.	3	.04	....	0	0	Cirrus ..	3-4	0	.....	.....	....	....	Clearing.
	10 32 p. m.	29.17	74	67	29.042	66	64	90	N.	4	.08	....	0	0	0	0	0	6.30 p. m.	7.30 p. m.	.17	....	Clear.

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Meteorological record for May 31, 1873.

(Hourly observations.)

Place of observation.		Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1	0 a. m.	23.76	60	50	23.68	50	49.5	96	N. E.	8	.32	....	Light fog	....	Cirrus ..	3-4	.....	.....	.....	.....	....	Cloudy.
	2	0 a. m.	23.76	60	50	23.68	50	50	100	N. E.	13	.84	....	Fog.....	....	Hidden .	...	.....	.....	.....	.....	....	Foggy.
	3	0 a. m.	23.75	58	50	23.68	50	49.5	96	N. E.	18	1.62	....	Light fog	....	0	0	0	.....	.....	.....	....	Foggy.
	4	0 a. m.	23.75	56	49	23.68	49	48	93	N. E.	14	.98	....	Light fog	....	Cirrus ..	4-4	N. E.	.....	.....	.....	....	Cloudy.
	5	0 a. m.	23.75	55	49	23.68	49	48.5	96	N. E.	14	.98	....	Fog.....	....	Hidden .	...	.....	.....	.....	.....	....	Foggy.
	6	0 a. m.	23.76	55	49	23.69	49	49	100	N. E.	14	.98	....	Dense fog	....	Hidden .	...	.....	.....	.....	.....	....	Foggy.
	7	14 n. m.	23.77	53	46	23.71	46	46	100	N. E.	16	1.28	....	Dense fog	....	Hidden .	...	.....	6.40 a. m.	.....	.04	....	Light rain.
	8	0 a. m.	23.76	52	46	23.72	46	46	100	N. E.	18	1.62	....	Dense fog	....	Hidden .	...	.....	.....	.....	.07	....	Light rain.
	9	0 a. m.	23.8-	52	47	23.74	47	47	100	N. E.	16	1.28	....	Dense fog	....	Hidden .	...	.....	.....	8.45 a. m.	.06	....	Foggy.
	10	0 a. m.	23.82	54	47	23.76	47	47	100	N. E.	16	1.28	....	Dense fog	....	Hidden .	...	.....	.....	.....	.....	....	Foggy.
	11	0 a. m.	23.84	58	48	23.77	48	48	100	N. E.	8	.32	....	Dense fog	....	Hidden .	...	.....	.....	.....	.....	....	Foggy.
	12	0 m ..	23.84	59	49	23.77	49	49	100	N. E.	8	.32	276	Dense fog	....	Hidden .	...	.....	.....	.....	.....	....	Foggy.
	1	0 p. m.	23.85	61	50	23.77	50	49.5	96	N. E.	8	.32	....	Light fog	....	Cirrus ..	1-4	E.	.....	.....	.....	....	Fair.
	2	0 p. m.	23.85	60	48	23.77	48	48	100	N. E.	12	.72	....	Dense fog	....	Hidden .	...	.....	.....	.....	.....	....	Foggy.
	3	0 p. m.	23.84	56	46	23.77	46	46	100	N. E.	12	.72	....	Dense fog	....	Hidden .	...	.....	.....	.....	.....	....	Foggy.
	4	14 p. m.	23.83	55	43	23.76	43	43	100	N. E.	16	1.28	....	Dense fog	....	Hidden .	...	.....	.....	.....	.....	....	Foggy.
	5	0 p. m.	23.82	55	44	23.75	44	44	100	N. E.	12	.72	....	Dense fog	....	Hidden .	...	.....	.....	.....	.....	....	Foggy.
	6	0 p. m.	23.82	55	43	23.75	43	43	100	N. E.	16	1.28	....	Dense fog	....	Hidden .	...	.....	.....	.....	.....	....	Foggy.
	7	0 p. m.	23.83	55	42	23.76	42	42	100	N. E.	18	1.62	....	Dense fog	....	Hidden .	...	.....	.....	.....	.....	....	Foggy.
	8	0 p. m.	23.84	56	42	23.77	42	42	100	N. E.	20	2.00	....	Dense fog	....	Hidden .	...	.....	.....	.....	.....	....	Foggy.
	9	0 p. m.	23.85	56	42	23.78	42	42	100	E.	24	2.88	....	Dense fog	....	Hidden .	...	.....	.....	.....	.....	....	Foggy.
	10	0 p. m.	23.86	57	43	23.79	43	43	100	N. E.	22	2.42	....	Dense fog	....	Hidden .	...	.....	.....	.....	.....	....	Foggy.
	10	39 p. m.	23.86	56	42	23.79	42	42	100	N. E.	22	2.42	....	Dense fog	....	Hidden .	...	.....	.....	.....	.....	....	Foggy.
	12	0 p. m.	23.84	54	42	23.78	42	42	100	E.	18	1.62	....	Dense fog	....	Hidden .	...	.....	.....	.....	.....	....	Foggy.
Knoxville, Tenn .	7	0 a. m.	29.24	72	68	29.117	67	64	81	N. E.	10	.50	....	Hazy	....	0	0	0	.....	.....	.....	....	Fair.
	7	7 a. m.	29.24	73	68	29.117	67	64	81	N. E.	10	.50	....	Hazy	....	0	0	0	.....	.....	.....	....	Fair.
	11	32 a. m.	29.27	77	76	29.134	75	70	76	E.	12	.72	153	Hazy	....	Cumulus	2-4	E.	.....	.....	.....	....	Fair.
	2	0 p. m.	29.23	79	80	29.089	79	69	58	N. E.	13	.84	....	Hazy	....	Cumulus	3-4	E.	.....	.....	.....	....	Cloudy.
	4	7 p. m.	29.22	78	78	29.082	77	69	63	N. E.	22	2.42	....	Nimbus...	1-4	Cumulus	1-4	E.	.....	.....	.....	....	Cloudy.
	9	0 p. m.	29.31	75	70	29.178	69	65	79	N. E.	12	.72	....	0	0	Cir.-cum	2-4	N.	.....	.....	.....	....	Fair.
	10	32 p. m.	29.31	74	67	29.180	66	62	78	N. E.	15	1.12	....	0	0	0	0	0	.....	.....	.....	....	Clear.

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Meteorological record for June 1, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.85	53	43	23.79	43	43	100	E.	16	1.18	....	Dense fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	53.85	51	44	23.79	44	43.5	96	E.	16	1.28	....	Light fog	....	0	0	0	.....	.....	....	....	Fair.
	3 0 a. m.	23.84	50	44	23.79	44	43	92	N. E.	14	.98	....	Light fog	....	0	0	0	.....	.....	....	....	Fair.
	4 0 a. m.	23.84	50	45	23.79	45	44	92	N. E.	8	.32	....	Light fog	....	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	5 0 a. m.	23.84	50	48	23.79	48	47	92	N. E.	4	.08	....	0	0	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	6 0 a. m.	23.85	51	51	23.79	51	48	79	N. E.	2	.02	....	0	0	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	7 14 a. m.	23.86	55	54	23.79	54	51	80	N. E.	8	.32	....	Hazy	....	Cir., cum	1-4	N. E.	.....	.....	....	....	Fair.
	8 0 a. m.	23.88	58	55	23.81	55	51	74	N. E.	4	.08	....	Hazy	....	Cir., cum	1-4	N. E.	.....	.....	....	....	Fair.
	9 0 a. m.	23.88	59	57	23.81	57	52	69	N. E.	2	.02	....	Hazy	....	Cirrus...	1-8	0	.....	.....	....	....	Fair.
	10 0 a. m.	23.89	61	57	23.81	57	49	52	N. E.	4	.08	....	Hazy	....	Cirrus...	1-4	N. E.	.....	.....	....	....	Fair.
	11 0 a. m.	23.89	62	58	23.81	58	50	53	N. E.	3	.04	....	Hazy	....	Cir., cum	1-4	N. E.	.....	.....	....	....	Fair.
	12 0 m ..	23.89	62	59	23.81	59	51	54	N. E.	2	.02	282	Hazy	....	Cumulus	1-4	N. E.	.....	.....	....	....	Fair.
	1 0 p. m.	23.88	63	57	23.80	57	51	63	N. E.	4	.08	....	Hazy	....	Cumulus	1-4	N. E.	.....	.....	....	....	Fair.
	2 0 p. m.	23.88	63	56	23.80	56	45	35	N. E.	8	.32	....	Hazy	....	Cumulus	1-4	N. E.	.....	.....	....	....	Fair.
	3 0 p. m.	23.88	65	56	23.79	56	42	19	N. E.	6	.18	....	Hazy	....	Cumulus	1-4	N. E.	.....	.....	....	....	Fair.
	4 14 p. m.	23.88	64	54	23.80	54	46	49	N. E.	8	.32	....	Hazy	....	Cumulus	1-4	N. E.	.....	.....	....	....	Fair.
	5 0 p. m.	23.88	63	53	23.80	53	41	24	N. E.	8	.32	....	Hazy	....	Cir.,cum	1-4	N. E.	.....	.....	....	....	Fair.
	6 0 p. m.	23.87	61	53	23.79	53	43	36	N. E.	8	.32	....	Hazy	....	Cir.,cum	1-4	N. E.	.....	.....	....	....	Fair.
	7 0 p. m.	23.84	53	44	23.78	44	33	15	N. E.	16	1.28	....	Hazy	....	Cir.,cum	1-4	0	.....	.....	....	....	Fair.
	8 0 p. m.	23.85	54	43	23.79	43	34	28	N. E.	18	1.62	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	....	....	Fair
	9 0 p. m.	23.87	57	44	23.80	44	40	68	E.	24	2.88	....	0	0	Cumulus	3-4	E.	.....	.....	....	....	Cloudy.
	10 0 p. m.	23.86	54	45	23.80	45	44	92	S. E.	26	3.38	....	Light fog	....	Cumulus	1-4	S. E.	.....	.....	....	....	Foggy.
	10 39 p. m	23.87	54	46	23.81	46	45	92	E.	20	2.00	....	Light fog	....	0	0	0	.....	.....	....	....	Fair.
	12 0 p. m.	23.86	53	46	23.80	46	45	92	E.	18	1.62	....	Light fog	....	0	0	0	.....	.....	....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.39	71	61	29.270	60	57	82	N. E.	10	.50	....	0	0	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	7 7 a. m.	29.39	71	61	29.270	60	57	82	N. E.	10	.50	....	0	0	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	11 32 a. m.	29.38	72	71	29.255	70	65	75	N. E.	4	.08	....	0	0	Cirrus ..	1-8	0	.....	.....	....	....	Clear.
	2 0 p. m.	29.32	76	77	29.185	76	66	56	E.	6	.18	....	0	0	Cir.-cum	1-4	0	.....	.....	....	....	Fair.
	4 7 p. m.	29.28	77	80	29.144	79	64	40	N. E.	12	.72	272	0	0	Cumulus	1-8	E.	.....	.....	....	....	Clear.
	9 0 p. m.	29.27	75	71	29.138	70	66	79	N.	3	.04	....	0	0	0	0	0	.....	.....	....	....	Clear.
	10 32 p. m.	29.27	73	67	29.145	66	61	73	E.	1	.01	....	Stratus ...	1-8	0	0	0	.....	.....	....	....	Clear.

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Meteorological record for June 2, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23. 85	53	46	23. 79	46	45	92	E.	18	1. 62	....	Fog in val'y	....	0	0	0	.....	.....	....	....	Fair.
	2 0 a. m.	23. 85	53	48	23. 79	48	47	93	E.	18	1. 62	....	0	0	0	0	0	.....	.....	....	....	Clear.
	3 0 a. m.	23. 85	53	48	23. 79	48	47. 5	96	E.	20	2. 00	....	Light fog	....	0	0	0	.....	.....	....	....	Fair.
	4 0 a. m.	23. 86	56	48	23. 79	48	48	100	E.	15	1. 12	....	Light fog	....	0	0	0	.....	.....	....	....	Fair.
	5 0 a. m.	22. 86	56	48	23. 79	48	48	100	E.	11	. 60	....	Light fog	....	0	0	0	.....	.....	....	....	Foggy.
	6 0 a. m.	23. 86	56	50	23. 79	50	49	93	E.	8	. 32	....	Light fog	....	0	0	0	.....	.....	....	....	Clear.
	7 14 a. m.	23. 87	57	54	23. 80	54	52	87	E.	10	. 50	....	Light fog	....	0	0	0	.....	.....	....	....	Fair.
	8 0 a. m.	23. 87	57	54	23. 80	54	52	87	E.	12	. 72	....	Light fog	....	0	0	0	.....	.....	....	....	Foggy.
	9 0 a. m.	23. 88	58	58	23. 81	58	55	81	E.	11	. 60	....	Light fog	....	Cumulus	1-4	E.	.....	.....	....	....	Fair.
	10 0 a. m.	23. 91	62	59	23. 83	59	56	81	E.	10	. 50	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	11 0 a. m.	23. 90	62	59	23. 82	59	56	81	E.	12	. 72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 m . .	23. 90	62	60	23. 82	60	57	81	E.	18	1. 62	308	Light fog	....	Cumulus	1-4	E.	.....	.....	....	....	Fair.
	1 0 p. m.	23. 89	62	62	23. 81	62	57	72	E.	12	. 72	....	Light fog	....	Cumulus	1-4	E.	.....	.....	....	....	Fair.
	2 0 p. m.	23. 88	62	60	23. 80	60	57	82	E.	12	. 72	....	Light fog	....	Cumulus	2-4	E.	.....	.....	....	....	Fair.
	3 0 p. m.	23. 88	63	60	23. 80	60	56	77	E.	12	. 72	....	Hazy	....	Cumulus	2-4	E.	.....	.....	....	....	Fair.
	4 14 p. m.	23. 87	61	60	23. 79	60	56	77	E.	12	. 72	....	Light fog	....	Cumulus	3-4	E.	.....	.....	....	....	Cloudy.
	5 0 p. m.	23. 87	58	55	23. 80	55	51	74	E.	11	. 60	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Cloudy.
	6 0 p. m.	23. 86	60	53	23. 78	53	52. 5	97	E.	12	. 72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 0 p. m.	23. 86	60	52	23. 78	52	52	100	E.	12	. 72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 p. m.	23. 86	60	51	23. 78	51	51	100	E.	20	2. 00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 p. m.	23. 86	59	51	23. 79	51	51	100	S. E.	22	2. 42	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 p. m.	23. 85	57	51	23. 78	51	51	100	N. E.	16	1. 28	....	Light fog	....	Cumulus	3-4	E.	.....	.....	....	....	Cloudy.
	10 39 p. m.	23. 85	56	50	23. 78	50	50	100	E.	16	1. 28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 p. m.	23. 84	56	51	23. 77	51	51	100	S. E.	12	. 72	....	Nimbus	4-4	Hidden	....	.....	11.15 p. m.	.....	.04	....	Light rain.
Knoxville, Tenn.	7 0 a. m.	29. 345	72	63	29. 222	62	55	61	E.	8	. 32	....	0	0	Cirrus ..	1-8	0	.....	.....	....	....	Clear.
	7 7 a. m.	29. 345	72	64	29. 222	63	56	61	E.	8	. 32	..	0	0	Cirrus .	1-8	0	.....	.....	....	....	Clear.
	11 32 a. m.	29. 31	75	76. 5	29. 178	75. 5	63	45	S. E.	10	. 50	146	0	0	Cumulus	1-8	0	.....	.....	....	....	Clear.
	2 0 p. m.	29. 26	77	82	29. 122	81	64	34	N. E.	12	. 72	....	0	0	Cumulus	1-8	0	.....	.....	....	....	Clear.
	4 7 p. m.	29. 24	70	85	29. 099	84	65	31	N.	9	. 40	....	0	0	Cumulus	1-8	0	.....	.....	....	....	Clear.
	9 0 p. m.	29. 23	77	76	29. 094	75	69	79	E.	3	. 04	....	0	0	Cir.-cum	4-4	W.	.....	.....	....	....	Cloudy
	10 32 p. m.	29. 23	77	74. 5	29. 094	73. 5	68	74	N.	1	. 01	....	0	0	Cumulus	1-4	0	.....	.....	....	....	Fair.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.85	56	51	23.78	51	51	100	E.	12	.72	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.06	....	Light rain.
	2 0 a. m.	23.83	56	51	23.76	51	51	100	S. E.	13	.84	....	Dense fog.	....	Hidden	....	.....	.....	1.43 a. m.	.03	....	Foggy.
	3 0 a. m.	23.82	55	50	23.75	50	50	100	S. E.	12	.72	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 0 a. m.	23.82	55	50	23.75	50	50	100	N.E.	12	.72	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 a. m.	23.83	55	50	23.76	50	50	100	E.	11	.60	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 a. m.	23.82	55	51	23.75	51	51	100	E.	16	1.23	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	23.81	55	51	23.74	51	51	100	E.	14	.98	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 a. m.	23.81	55	52	23.74	52	52	100	E.	12	.72	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.82	55	53	23.75	53	53	100	E.	15	1.12	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 a. m.	23.82	52	53	23.75	53	53	100	E.	14	.98	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	11 0 a. m.	23.81	52	54	23.74	54	54	100	E.	8	.32	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	12 0 m .	23.81	59	54	23.74	54	54	100	E.	8	.32	331	Light fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	1 0 p. m.	23.79	59	55	23.72	55	54.5	97	N.E.	12	.72	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 p. m.	23.78	60	57	23.70	57	55	87	E.	13	.84	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3 0 p. m.	23.76	58	56	23.69	56	55	93	E.	16	1.23	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 14 p. m.	23.73	58	55	23.66	55	53.5	90	N.E.	27	3.64	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 p. m.	23.73	61	54	23.66	54	53.5	97	E.	18	1.62	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 p. m.	23.74	61	53	23.66	53	52	93	E.	20	2.00	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 0 p. m.	23.74	62	52	23.66	52	52	100	E.	24	2.88	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 p. m.	23.73	59	51	23.66	51	51	100	E.	24	2.88	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 p. m.	23.73	58	51	23.66	51	51	100	E.	16	1.28	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 p. m.	23.73	59	52	23.66	52	52	100	E.	12	.72	....	Fog.....	....	Hidden	....	.....	.....	9.15 p. m.	.18	....	Heavy rain.
	10 39 p. m.	23.71	58	52	23.64	52	52	100	E.	10	.50	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.05	....	Light rain.
	12 0 p. m.	23.70	58	52	23.63	52	52	100	E.	6	.18	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.21	....	Heavy rain.
Knoxville, Tenn .	7 0 a. m.	29.22	74	70	29.092	69	64	75	N. E.	8	.32	....	0	0	Cumulus	1-8	0	.....	.....	.....	....	Clear.
	7 7 a. m.	29.22	74	70	29.092	69	64	75	N. E.	8	.32	....	0	0	Cumulus	1-8	0	.....	.....	.....	....	Clear.
	11 32 a. m.	29.20	81	82	29.054	81	70	55	E.	3	.04	123	0	0	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	2 0 p. m.	29.13	82	86	28.962	85	70	44	S.	5	.12	....	Cum.-strat.	1-4	Cumulus	2-4	0	.....	.....	.....	....	Cloudy.
	4 7 p. m.	29.10	84	87	28.946	86	72	47	S.E.	4	.08	....	0	0	Cumulus	3-4	E.	.....	.....	.....	....	Cloudy.
	9 0 p. m.	29.10	79	73	28.959	72	69	85	S.W.	2	.02	....	Stratus ...	2-4	Cumulus	2-4	0	.....	.....	.....	....	Cloudy.
	10 32 p. m.	29.08	79	71.5	28.939	70.5	68	87	E.	4	.08	....	Stratus ...	1-4	Cumulus	3-4	0	6.30 p. m.	7.00 p. m.	.01	....	Cloudy.

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Meteorological record for June 4, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.70	58	51	23.63	51	51	100	S. E.	6	.18	....	Nimbus...	4-4	Hidden..	....	.....	.....	.....	.08	....	Light rain.
	2 0 a. m.	23.69	56	51	23.62	51	51	100	S. W.	18	1.62	....	Fog.....	....	Hidden..	....	.....	.....	1.25 a. m.	.03	....	Foggy.
	3 0 a. m.	23.68	56	52	23.61	52	52	100	S.	12	.72	....	Nimbus...	4-4	Hidden..	....	.....	2.45 a. m.	.....	.07	....	Heavy rain.
	4 0 a. m.	23.68	56	52	23.61	52	52	100	S. W.	10	.50	....	Nimbus...	4-4	Hidden..	....	.....	.....	.....	.27	....	Light rain.
	5 0 a. m.	23.69	55	52	23.62	52	52	100	S. W.	12	.72	....	Nimbus...	4-4	Hidden..	....	.....	.....	.....	.04	....	Light rain.
	6 0 a. m.	23.69	56	55	23.62	55	55	100	S. W.	6	.18	....	Fog.....	....	Hidden..	....	.....	.....	5.00 a. m.	.02	....	Foggy.
	7 14 a. m.	23.70	55	58	23.63	58	58	100	S. W.	8	.32	....	Dense fog	....	Hidden..	....	.....	.....	.....	.....	....	Foggy.
	8 0 a. m.	23.69	56	57	23.62	57	56	94	S. W.	8	.32	....	Fog.....	....	Hidden..	....	.....	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.70	59	60	23.63	60	57	82	S. W.	8	.32	....	0	0	Cumulus.	4-4	S.	.....	.....	.....	....	Cloudy.
	10 0 a. m.	23.68	61	64	23.60	64	61	83	S. W.	8	.32	....	Hazy	....	Cumulus.	3-4	S. W.	.....	.....	.....	....	Cloudy.
	11 0 a. m.	23.67	60	59	23.60	59	58	94	S. W.	8	.32	....	Fog.....	....	Cumulus.	2-4	S. W.	.....	.....	.....	....	Cloudy.
	12 0 m ..	23.65	59	59	23.58	59	58	94	S. W.	8	.32	301	Light fog	....	Cumulus.	3-4	S. W.	11.20 a. m.	11.45 a. m.	.03	....	Cloudy.
	1 0 p. m.	23.64	62	65	23.56	65	61	78	S.	8	.32	....	Fog.....	....	Hidden..	....	.....	.....	.....	.....	....	Foggy.
	2 0 p. m.	23 63	62	60	23.55	60	59	94	S. W.	10	.50	....	Light fog	....	Cumulus.	4-4	0	.....	.....	.....	....	Cloudy.
	3 0 p. m.	23.62	60	59	23.55	59	58	94	S. W.	8	.32	....	Fog.....	....	Cumulus.	1-4	0	.....	.....	.....	....	Cloudy.
	4 14 p. m.	23.62	58	56	23.55	56	55	93	W.	8	.32	....	Fog.....	....	Hidden..	....	.....	3.10 p. m.	.....	.04	....	Light rain.
	5 0 p. m.	23.60	59	58	23.53	58	56	88	W.	8	.32	....	Fog.....	....	Cumulus.	2-4	0	.....	4 30 p. m.	.02	....	Cloudy.
	6 0 p. m.	23.60	59	57	23.53	57	55	87	W.	4	.08	....	Fog.....	....	Hidden..	....	.....	.....	.....	.....	....	Foggy.
	7 0 p. m.	23.60	59	53	23.53	53	52	93	S. W.	8	.32	....	Light fog	....	Cumulus.	1-4	0	.....	.....	.....	....	Fair.
	8 0 p. m.	23.60	59	52	23.53	52	51	93	W.	16	1.28	....	0	0	Cir., cum	2-4	0	.....	.....	.....	....	Fair.
	9 0 p. m.	23.60	58	52	23.53	52	52	100	W.	12	.72	....	Dense fog	....	Hidden..	....	.....	.....	.....	.....	....	Foggy.
	10 0 p. m.	23.60	58	53	23.53	53	53	100	W.	16	1.28	....	Fog.....	....	Hidden..	....	.....	.....	.....	.....	....	Foggy.
	10 39 p. m.	23.60	58	52	23.53	52	52	100	W.	20	2 00	....	Fog.....	....	Hidden..	....	.....	.....	.....	.....	....	Foggy.
	12 0 p. m.	23.58	57	52	23.51	52	52	100	N. W.	18	1.62	....	Fog	....	Hidden..	....	.....	.....	.....	.....	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.08	77	70	28.944	69	67	90	E.	2	.02	....	Stratus ...	1-4	Cir., cum	3-4	0	.....	.....	.....	....	Cloudy.
	7 7 a. m.	29.08	77	70.5	28.944	69.5	67.5	90	E.	2	.02	....	Stratus ...	1-4	Cir., cum	3-4	0	.....	.....	.....	....	Cloudy.
	11 32 a. m.	29.04	82	80	28.892	70	70	61	S.	4	.08	87	Nimbus ..	2-4	Cumulus.	2-4	S. W.	.....	.....	.....	....	Threatening.
	2 0 p. m.	28.96	84	83	28.806	72	71	56	S. W.	8	.32	....	Stratus ...	2-4	Cu. & cir.	1-4	.....	.....	.....	.....	....	Cloudy.
	4 7 p. m.	28.90	82	80	28.742	79	72	69	S.	8	.32	....	0	0	Cumulus.	2-4	.....	12.10 p. m.	.....	.08	....	Clearing.
	9 0 p. m.	28.94	78	76	28.802	75	70	76	S. W.	6	.18	....	Cum-strat.	4-4	Hidden..	....	.....	.....	.....	.....	....	Cloudy.
	10 32 p. m.	28.95	79	73	28.809	72	69	85	S. W.	6	.18	..	Stratus ...	2-4	Cir., cum	1-4	S. W.	3.15 p. m.	3.30 p. m.	.....	....	Cloudy.

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Meteorological record for June 5, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Com'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.56	57	53	23.49	53	53	100	W.	24	2.88	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 a. m.	23.55	57	53	23.48	53	53	100	W.	24	3.92	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3 0 a. m.	23.54	57	53	23.47	53	53	100	S.W.	28	3.92	....	Dense fog	....	Hidden	....	.....	2.15 a. m.	2.35 a.m.	.02	....	Foggy.
	4 0 a. m.	23.55	56	52	23.48	52	52	100	N. W.	24	2.88	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 a. m.	23.56	56	52	23.49	52	52	100	W.	28	3.92	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 a. m.	23.57	56	52	23.50	52	52	100	W.	24	2.88	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	23.59	56	53	23.52	53	53	100	S.W.	22	2.42	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 a. m.	23.60	56	54	23.53	54	54	100	S.W.	22	2.42	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.61	56	53	23.54	53	53	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 a. m.	23.62	57	54	23.55	54	54	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	11 0 a. m.	23.62	57	55	23.55	55	54	93	N. W.	20	2.00	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	12 0 m.	23.62	59	56	23.55	56	55	94	N. W.	14	.98	403	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	1 0 p. m.	23.60	59	56	23.53	56	56	100	W.	20	2.00	....	Fog	....	Hidden	....	.....	12.40 p.m.	12.55 p.m.	.09	....	Foggy.
	2 0 p. m.	23.60	59	56	23.53	56	56	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	1.20 p.m.	1.45 p.m.	.44	....	Foggy.
	3 0 p. m.	23.59	58	56	23.52	56	56	100	N. W.	18	1.62	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 14 p. m.	23.59	61	57	23.51	57	56	94	N. W.	16	1.28	....	Fog	....	Cir., cum	2-4	0	.....	.....	.....	....	Cloudy.
	5 0 p. m.	23.61	60	54	23.54	54	54	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 p. m.	23.61	62	54	23.53	54	54	100	W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 0 p. m.	23.61	60	52	23.54	52	52	100	W.	20	2.00	....	Nimbus	4-4	Hidden	....	.....	6.08 p.m.	.....	.44	....	Heavy rain.
	8 0 p. m.	23.62	57	52	23.55	52	52	100	W.	26	3.38	....	Fog	....	Hidden	....	.....	.....	7.05 p.m.	.01	....	Foggy.
	9 0 p. m.	23.63	57	53	23.56	53	52	100	W.	24	2.88	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 p. m.	23.62	56	53	23.55	53	53	100	N. W.	26	3.38	....	Nimbus	4-4	Hidden	....	.....	9.18 p.m.	.....	.13	....	Heavy rain.
	10 39 p. m.	23.62	56	52	23.55	52	52	100	N. W.	24	2.88	....	Dense fog	....	Hidden	....	.....	.....	10.20 p.m.	.02	....	Foggy.
	12 0 p. m.	23.61	56	52	23.54	52	52	100	N. W.	22	2.42	....	Dense fog	....	Hidden	....	.....	10.45 p.m.	11.30 p.m.	.08	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.01	77	72	28.874	71	69	90	S.W.	8	.32	....	Stratus	1-4	Cirrus	3-4	.....	.....	.....	.....	....	Cloudy.
	7 7 a. m.	29.01	77	72	28.874	71	69	9	S.W.	8	.32	....	Stratus	1-4	Cirrus	3-4	.....	.....	.....	.....	....	Cloudy.
	11 22 a. m.	29.01	82	81.5	28.862	80.5	72	65	S.W.	12	.72	187	Cum.-strat.	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	2 0 p. m.	28.95	82	85	28.802	84	73	57	S.W.	12	.72	....	Cum.-strat.	1-4	Cir. & cu	1-4	0	.....	.....	.....	....	Cloudy.
	4 7 p. m.	28.96	80	76	28.817	75	69	72	N. W.	12	.72	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	9 0 p. m.	29.01	75	71	28.880	70	68	90	S.W.	12	.72	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	....	Light rain.
	10 32 p. m.	29.01	77	69	28.874	68	67	94	S.	8	.32	....	Nimbus	4-4	Hidden	....	.....	7.45 p.m.	11.30 p.m.	.19	....	Light rain.

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Meteorological record for June 6, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.60	55	51	23.54	51	51	100	N. W.	24	2.88	....	Nimbus	4-4	Hidden	....	.....	12.16 a. m.	.....	.04	....	Light rain.
	2 0 a. m.	23.58	54	49	23.52	49	49	100	N. W.	24	2.88	....	Dense fog	....	Hidden	....	.....	.....	1.23 a. m.	.02	....	Foggy.
	3 0 a. m.	23.57	53	50	23.51	50	50	100	N. W.	26	3.38	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 0 a. m.	23.58	54	51	23.52	51	51	100	W.	24	2.88	....	Nimbus	4-4	Hidden	....	.....	3.27 a. m.	.....	.06	....	Light rain.
	5 0 a. m.	23.60	55	51	23.54	51	51	100	W.	18	1.62	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.02	....	Light rain.
	6 0 a. m.	23.62	55	51	23.56	51	51	100	W.	16	1.28	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.03	....	Light rain.
	7 14 a. m.	23.64	56	52	23.57	52	52	100	W.	13	.84	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.02	....	Light rain.
	8 0 a. m.	23.64	56	53	23.57	53	53	100	W.	12	.72	....	Fog	....	Hidden	....	.....	.....	7.20 a. m.	.....	....	Foggy.
	9 0 a. m.	23.65	56	54	23.58	54	54	100	N. W.	12	.72	....	Fog	....	Hidden	....	.....	8.10 a. m.	8.50 a. m.	.06	....	Foggy.
	10 0 a. m.	23.67	60	54	23.60	54	54	100	W.	8	.32	....	Nimbus	4-4	Hidden	....	.....	9.10 a. m.	.....	.11	....	Light rain.
	11 0 a. m.	23.68	57	54	23.61	54	54	100	W.	16	1.28	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.08	....	Light rain.
	12 0 m.	23.65	58	53	23.58	53	53	100	N. W.	16	1.28	457	Nimbus	4-4	Hidden	....	.....	.....	12.10 p. m.	.03	....	Light rain.
	1 0 p. m.	23.66	58	56	23.59	56	55	93	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 p. m.	23.65	58	55	23.58	55	55	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3 0 p. m.	23.66	59	55	23.59	55	55	100	N. W.	8	.32	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 14 p. m.	23.67	60	54	23.59	54	54	100	W.	8	.32	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 p. m.	23.67	58	53	23.60	53	53	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....	4.22 p. m.	4.48 p. m.	.01	....	Foggy.
	6 0 p. m.	23.68	58	53	23.61	53	53	100	W.	16	1.28	....	Fog	....	Cirrus	4-4	W.	.....	.....	.....	....	Cloudy.
	7 0 p. m.	23.69	58	52	23.62	52	52	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 p. m.	23.70	58	52	23.63	52	52	100	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 p. m.	23.72	58	52	23.65	52	52	100	N.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 p. m.	23.73	58	52	23.66	52	52	100	N. W.	4	.08	....	Fog	....	Cir., cum	3-4	.....	.....	.....	.....	....	Foggy.
	10 39 p. m.	23.73	58	51	23.66	51	51	100	N.	8	.32	....	Fog	....	Cirrus	2-4	.....	.....	.....	.....	....	Foggy.
	12 0 p. m.	23.73	57	51	23.66	51	51	100	N. W.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.06	75	69	28.930	68	67	95	S. W.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	7 7 a. m.	29.06	75	69	28.930	68	67	95	S. W.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	11 32 a. m.	29.005	80	77	28.932	76	69	69	W.	9	.40	198	Stratus	4-4	Hidden	....	.....	.....	11.30 p. m.	.02	....	Cloudy.
	2 0 p. m.	29.05	83	81.5	28.899	80.5	70.5	38	W.	8	.32	....	Cum.-strat.	1-4	Cir. & cu	2-4	N. W.	.....	.....	.....	....	Cloudy.
	4 7 p. m.	29.045	83	84.5	28.894	83.5	72.5	56	S. W.	8	.32	....	Stratus	1-8	Cir. & cu	3-4	N. W.	8.15 a. m.	8.45 a. m.	.02	....	Cloudy.
	9 0 p. m.	29.08	80	75	28.937	74	70	81	W.	7	.24	....	0	0	Cir. & cu	4-4	S. W.	.....	.....	.....	....	Cloudy.
	10 33 p. m.	28.10	77	73	28.964	72	69	85	S. W.	3	.04	....	0	0	Cirrus	2-4	0	9.00 p. m.	9.15 p. m.	.01	....	Fair.

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Meteorological record for June 7, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.72	57	50	23.65	50	49	93	N.	8	.32	....	Light fog	.....	Cir., cum	2-4	N.	.....	.....	.....	.....	Fair.
	2 0 a. m.	23.70	55	50	23.64	50	49	93	N.	12	.72	....	Light fog	.....	0	0	0	.....	.....	.....	.....	Fair.
	3 0 a. m.	23.70	55	51	23.64	51	50.5	96	N. W.	10	.50	....	Fog	.....	Hidden..	....	.....	.....	.....	.....	.....	Foggy.
	4 0 a. m.	23.71	55	51	23.65	51	51	100	N. W.	14	.98	....	Fog	.....	Hidden..	....	.....	.....	.....	.....	.....	Foggy.
	5 0 a. m.	23.73	55	51	23.67	51	51	100	N. W.	12	.72	....	Fog	.....	Hidden..	....	.....	.....	.....	.....	.....	Foggy.
	6 0 a. m.	23.74	54	51	23.68	51	51	100	N. W.	10	.50	....	Fog	.....	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	7 14 a. m.	23.75	55	51	23.69	51	51	100	N. W.	11	.60	....	Fog	.....	Cumulus	1-4	N. W.	.....	.....	.....	.....	Fair.
	8 0 a. m.	23.76	56	53	23.70	53	52	93	N. W.	9	.40	....	Hazy	.....	Cumulus	1-4	N. W.	.....	.....	.....	.....	Fair.
	9 0 a. m.	23.77	56	58	23.70	58	56	88	W.	6	.18	....	Hazy	.....	Cumulus	1-4	N. W.	.....	.....	.....	.....	Fair.
	10 0 a. m.	23.78	57	58	23.71	58	55	82	N. W.	6	.18	....	Hazy	.....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	11 0 a. m.	23.78	62	60	23.70	60	55	71	N. W.	8	.32	....	Hazy	.....	Cumulus	2-4	N. W.	.....	.....	.....	.....	Fair.
	12 0 m...	23.79	62	61	23.71	61	56	71	N. W.	4	.08	230	Hazy	.....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	1 0 p. m.	23.80	65	61	23.71	61	56	71	N. W.	8	.32	....	Hazy	.....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	2 0 p. m.	23.79	64	58	23.71	58	54	76	W.	8	.32	....	Hazy	.....	Cumulus	3-4	W.SE.	.....	.....	.....	.....	Cloudy.
	3 0 p. m.	23.78	63	57	23.70	57	53	75	N. W.	10	.50	....	Hazy	.....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	4 14 p. m.	23.77	64	60	23.69	60	54	65	N.	12	.72	....	Hazy	.....	Cumulus	2-4	N. W.	.....	.....	.....	.....	Fair.
	5 0 p. m.	23.76	63	59	23.68	59	55	76	N. W.	12	.72	....	Hazy	.....	Cumulus	1-4	N.	.....	.....	.....	.....	Fair.
	6 0 p. m.	23.77	62	56	23.69	56	53	81	N. W.	12	.72	....	Hazy	.....	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	7 0 p. m.	23.77	57	53	23.70	53	51	86	N. W.	8	.32	....	Hazy	.....	Cir., cum	2-4	N. W.	.....	.....	.....	.....	Fair.
	8 0 p. m.	23.77	58	52	23.70	52	49	79	N.	8	.32	....	Hazy	.....	Cirrus ..	2-4	0	.....	.....	.....	.....	Fair.
	9 0 p. m.	23.79	59	52	23.72	52	47	66	N. W.	8	.32	....	Hazy	.....	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	10 0 p. m.	23.79	59	52	23.72	52	47	66	N.	4	.08	....	Hazy	.....	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	10 39 p. m.	23.79	59	51	23.72	51	48	79	S.W.	4	.08	....	Hazy	.....	Cumulus	2-4	S.W.	.....	.....	.....	.....	Fair.
	12 0 p. m.	23.79	59	51	23.72	51	47	72	S.	4	.08	....	Hazy	.....	Cumulus	2-4	S.W.	.....	.....	.....	.....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.18	77	68	29.044	67	66	94	E.	3	.04	....	Fog	.....	Hidden..	....	.....	.....	.....	.....	.....	Foggy.
	7 7 a. m.	29.18	77	68	29.044	67	66	94	E.	3	.04	....	Fog	.....	Hidden..	....	.....	.....	.....	.....	.....	Foggy.
	11 32 a. m.	29.18	79	71.5	29.039	70.5	66	42	N. E.	8	.32	99	0	0	Cumulus	2-4	N. E.	.....	.....	.....	.....	Fair.
	2 0 p. m.	29.17	82	75	29.032	74	68	40	N.	4	.08	....	0	0	Cumulus	1-4	N.	.....	.....	.....	.....	Fair.
	4 7 p. m.	29.15	84	75	28.996	74	67	37	N.	10	.60	....	0	0	Cir. & cu	2-4	N.	.....	.....	.....	.....	Fair.
	9 0 p. m.	29.15	80	76	29.007	75	67	63	N. E.	4	.08	....	0	0	Cirrus ..	1-8	0	.....	.....	.....	.....	Clear.
	10 32 p. m.	29.16	79	74	29.010	73	67	71	E.	2	.02	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.

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Meteorological record for June 8, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.78	57	50	23.71	50	46	72	S. E.	4	.08	....	Hazy	....	Cumulus	2-4	N. W.			....	....	Fair.
	2 0 a. m.	23.77	57	50	23.70	50	47	79	S. E.	3	.04	....	Hazy	....	Cumulus	1-4	N. W.			....	....	Fair.
	3 0 a. m.	23.77	57	50	23.70	50	48	86	S. E.	6	.18	....	Hazy	....	Cirrus	1-4	0			....	....	Fair.
	4 0 a. m.	23.77	56	49	23.70	49	48	93	S. E.	6	.18	....	0	0	0	0	0			....	....	Clear.
	5 0 a. m.	23.77	56	49	23.70	49	48	93	S. E.	2	.02	....	0	0	Cirrus	1-8	0			....	....	Clear.
	6 0 a. m.	23.77	56	53	23.70	53	50	78	S. E.	2	.02	....	0	0	Cirrus	1-4	0			....	....	Fair.
	7 14 a. m.	23.78	56	51	23.71	51	48	79	S. E.	5	.12	....	Fog	....	Hidden	....	.....			....	....	Foggy.
	8 0 a. m.	23.79	57	57	23.72	57	52	69	S. E.	3	.04	....	0	0	Cirrus	1-4	0			....	....	Fair.
	9 0 a. m.	23.79	58	59	23.72	59	54	70	E.	3	.04	....	Hazy	....	Cumulus	1-4	W.			....	....	Clear.
	10 0 a. m.	23.80	59	60	23.73	60	55	71	S.	2	.02	....	Hazy	....	Cumulus	3-4	W.			....	....	Cloudy.
	11 0 a. m.	23.79	59	61	23.72	61	56	71	S.	2	.02	....	Hazy	....	Cumulus	3-4	W.			....	....	Cloudy.
	12 0 m ..	23.80	58	60	23.73	60	55	71	S. W.	4	.08	138	Hazy	....	Cumulus	4-4	W.			....	....	Cloudy.
	1 0 p. m.	23.77	57	60	23.70	60	55	71	S. W.	2	.02	....	0	0	Cumulus	4-4	W.			....	....	Cloudy.
	2 0 p. m.	23.78	60	59	23.70	59	54	70	S. W.	4	.08	....	Hazy	....	Cumulus	4-4	W.			....	....	Cloudy.
	3 0 p. m.	23.79	60	55	23.71	55	53	87	E.	4	.08	....	Fog	....	0	0	0			....	....	Foggy.
	4 14 p. m.	23.78	61	52	23.70	52	51	93	E.	8	.32	....	Fog	....	Hidden	....	.....			....	....	Foggy.
	5 0 p. m.	23.78	59	51	23.71	51	51	100	E.	12	.72	....	Fog	....	Hidden	....	.....			....	....	Foggy.
	6 0 p. m.	23.77	57	50	23.71	50	49.5	96	E.	12	.72	....	Fog	....	Hidden	....	.....			....	....	Foggy.
	7 0 p. m.	23.77	55	49	23.70	49	49	100	E.	12	.72	....	Fog	....	Hidden	....	.....			....	....	Foggy.
	8 0 p. m.	23.78	61	50	23.70	50	49	93	E.	14	.98	....	Fog	....	Hidden	....	.....			....	....	Foggy.
	9 0 p. m.	23.80	60	47	23.72	47	47	100	E.	20	2.00	....	Fog	....	Hidden	....	.....	8.10 p. m.	8.40 p. m.	.04	....	Foggy.
	10 0 p. m	23.81	57	47	23.74	47	47	100	E.	16	1.28	....	Fog	....	Hidden	....	.....			....	....	Foggy.
	10 39 p. m.	23.79	56	47	23.72	47	47	100	E.	18	1.62	....	Fog	....	Hidden	....	.....			....	....	Foggy.
	12 0 p. m.	23.78	53	45	23.72	45	45	100	E.	16	1.28	....	Nimbus	4-4	Hidden	....	.....	11.25 p. m.	.....	.01	....	Light rain.
Knoxville, Tenn.	7 0 a. m.	29.16	72	70	29.037	69	63	70	N. E.	12	.72	....	0	0	Cirrus	1-4	0			....	....	Fair.
	7 7 a. m.	29.16	72	70	29.037	69	63	70	N. E.	12	.72	....	0	0	Cirrus	1-4	0			....	....	Fair.
	11 32 a. m.	29.15	80	81.5	29.007	80.5	69	53	S. W.	6	.18	163	Hazy	....	Cir. & cu	1-4	W.			....	....	Fair.
	2 0 p. m.	29.12	82	85	29.024	84	70	46	N. E.	6	.18	....	Hazy	....	Cir. & cu	3-4	0			....	....	Cloudy.
	4 7 p. m.	29.11	84	87	28.956	80	73	51	N. E.	12	.72	....	Hazy	....	Cir. & cu	4-4	0			....	....	Cloudy.
	9 0 p. m.	29.16	80	77	29.017	76	71	76	S. W.	4	.08	....	Cum.-strat.	4-4	Hidden	....	.....			....	....	Cloudy.
	10 32 p. m.	29.17	81	76	29.024	75	70	76	S.	1	.01	....	Cum.-strat.	4-4	Hidden	....	.....			....	....	Cloudy.

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Meteorological record for June 9, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.78	51	44	23.72	44	44	100	E.	16	1.28	4-4	Nimbus...	4-4	Hidden	....	.....	.....	.....	.06	....	Light rain.
	2 0 a. m.	23.77	51	43	23.71	43	43	100	E.	20	2.00	....	Fog.....	....	Hidden	....	.....	.....	1.41 a. m.	.03	....	Foggy.
	3 0 a. m.	23.77	50	42	23.72	42	42	100	E.	16	1.28	....	Dense fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 0 a. m.	23.77	49	41	23.72	41	41	100	E.	14	.98	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 a. m.	23.77	49	43	23.72	43	43	100	E.	9	.40	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 a. m.	23.78	50	46	23.73	46	46	100	S.	8	.32	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	23.78	49	47	23.73	47	47	100	S. W.	12	.72	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 a. m.	23.78	50	48	23.73	48	48	100	S. W.	12	.72	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.79	52	54	23.73	54	53	93	S. W.	8	.32	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 a. m.	23.80	55	56	23.73	56	54	87	W.	4	.08	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	11 0 a. m.	23.80	55	55	23.73	55	53	87	W.	4	.08	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	12 0 m ..	23.80	56	59	23.73	59	56	82	W.	4	.08	272	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	1 0 p. m.	23.78	56	57	23.71	57	54	81	W.	4	.08	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 p. m.	23.78	57	57	23.71	57	54	81	W.	4	.08	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3 0 p. m.	23.77	58	54	23.70	54	53	93	W.	4	.08	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 14 p. m.	23.77	62	55	23.69	55	53	87	N. W.	4	.08	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 p. m.	23.76	58	52	23.69	52	51	93	N. W.	3	.04	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 p. m.	23.76	58	54	23.69	54	52	87	N. W.	1	.01	....	Light fog	....	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	7 0 p. m.	23.76	58	53	23.69	53	52	93	0	0	0	....	0	0	Cumulus	3-4	W.	.....	.....	.....	....	Cloudy.
	8 0 p. m.	23.77	58	51	23.70	51	49	86	0	0	0	....	.....	....	Cumulus	3-4	0	.....	.....	.....	....	Cloudy.
	9 0 p. m.	23.77	62	50	23.69	50	49	93	N. W.	4	.08	....	0	0	Cumulus	4-4	W.	.....	.....	.....	....	Cloudy.
	10 0 p. m.	23.78	62	51	23.70	51	49	86	W.	6	.18	....	0	0	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	10 39 p. m.	23.79	61	50	23.71	50	49	93	S. W.	4	.08	....	Light fog	....	Cumulus	3-4	S. W.	.....	.....	.....	....	Cloudy.
	12 0 p. m.	23.77	57	47	23.70	47	47	100	S. W.	12	.72	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.24	75	71	29.110	70	63	61	N. E.	8	.32	....	Cum.-strat	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	7 7 a. m.	29.24	75	71	29.110	70	63	61	N. E.	8	.32	....	Cum.-strat	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	11 32 a. m.	29.25	82	82	29.102	81	71	59	N. E.	12	.72	145	Hazy	....	Cumulus	4-4	S. W.	.....	.....	.....	....	Cloudy.
	2 0 p. m.	29.20	83	74.5	29.049	73.5	66.5	67	W.	16	1.28	....	Cum.-strat	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	4 7 p. m.	29.19	82	74.5	29.042	73.5	67	66	N. W.	12	.72	....	Cum.-strat	3-4	Cumulus	1-4	0	.....	.....	.....	....	Cloudy.
	9 0 p. m.	29.18	75	68	29.050	67	64	84	S. W.	8	.32	....	Cum.-strat	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	10 32 p. m.	29.21	75	68.5	29.080	67.5	64	81	S.	3	.04	....	Cum.-strat	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.

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Meteorological record for June 10, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.76	56	47	23.69	47	47	100	W.	4	.08	....	Fog	....	Cumulus	3-4	W.			....	....	Cloudy.
	2 0 a. m.	23.75	56	46	23.68	46	45	92	S.W.	8	.32	....	0	0	Cumulus	4-4	S.W.			....	....	Cloudy.
	3 0 a. m.	23.75	55	48	23.68	48	47	92	S.W.	6	.18	....	0	0	Cumulus	4-4	W.			....	....	Cloudy.
	4 0 a. m.	23.75	56	50	23.68	50	48	86	S.W.	3	.04	....	Light fog	....	Cumulus	4-4	W.			....	....	Cloudy.
	5 0 a. m.	23.75	56	51	23.68	51	48	79	S.W.	2	.02	....	Light fog	....	Cumulus	4-4	S.W.			....	....	Cloudy.
	6 0 a. m.	23.76	54	50	23.70	50	49	93	S.W.	4	.08	....	Stratus	1-4	Cumulus	2-4	W.			....	....	Cloudy.
	7 14 a. m.	23.77	55	53	23.70	53	51	86	S.W.	3	.04	....	Stratus	2-4	Cumulus	2-4	W.			....	....	Cloudy.
	8 0 a. m.	23.77	60	54	23.69	54	52	87	S.W.	2	.02	....	Stratus	1-4	Cumulus	2-4	W.			....	....	Cloudy.
	9 0 a. m.	23.78	57	56	23.71	56	53	81	S.W.	1	.01	....	Stratus	2-4	Cumulus	1-4	W.	8.05 a. m.	8.40 a. m.	.06	....	Cloudy.
	10 0 a. m.	23.79	57	56	23.72	56	53	81	W.	2	.02	....	Fog	....	Cumulus	1-4	0			....	....	Foggy.
	11 0 a. m.	23.79	57	56	23.72	56	53	81	W.	2	.02	....	Stratus	2-4	Cumulus	2-4	W.	10.50 a. m.	10.55 a. m.	.01	....	Cloudy.
	12 0 m ..	23.78	57	56	23.71	58	54	78	S W.	3	.04	87	Stratus	2-4	Cumulus	1-4	0			....	....	Cloudy.
	1 0 p. m.	23.78	57	62	23.71	62	56	67	S.W.	6	.18	....	Stratus	2-4	Cumulus	1-4	0	12.55 p. m.	12.45 p. m.	.01	....	Cloudy.
	2 0 p. m.	23.78	57	62	23.71	62	56	67	S.W.	8	.32	....	Hazy	....	Cumulus	3-4	0			....	....	Cloudy.
	3 0 p. m.	23.77	59	60	23.70	60	55	71	S.E.	8	.32	....	Fog	....	Hidden	....	.....			....	....	Foggy.
	4 14 p. m.	23.75	56	56	23.68	56	53	81	S.W.	8	.32	....	Hazy	....	Cumulus	4-4	0			....	....	Cloudy.
	5 0 p. m.	23.75	56	55	23.68	55	51	74	S.W.	10	.50	....	Hazy	....	Cumulus	3-4	0			....	....	Cloudy.
	6 0 p. m.	23.73	52	51	23.67	51	50	93	S.W.	22	2.42	....	0	0	Cumulus	2-4	0			....	....	Fair.
	7 0 p. m.	23.73	52	49	23.67	49	47	85	S.W.	16	1.28	....	Hazy	....	Cumulus	2-4	W.			....	....	Fair.
	8 0 p. m.	23.74	58	47	23.67	47	46	92	S.W.	20	2.00	....	0	0	Cumulus	4-4	S.W.			....	....	Cloudy.
	9 0 p. m.	23.74	49	47	23.69	47	46	92	S.W.	28	3.92	....	0	0	Cumulus	4-4	0			....	....	Cloudy.
	10 0 p. m.	23.72	53	47	23.66	47	46	92	S.W.	34	5.78	....	0	0	Cumulus	4-4	S.W.			....	....	Cloudy.
	10 39 p. m.	23.72	52	47	23.66	47	46	92	S.W.	32	5.12	....	0	0	Cumulus	4-4	S.W.			....	....	Cloudy.
	12 0 p. m.	23.72	51	47	23.66	47	46.5	96	S.W.	36	6.48	....	0	0	Cumulus	4-4	S.W.			....	....	Cloudy.
Knoxville, Tenn.	7 0 a. m.	29.23	73	67	29.105	66	63	84	0	0	0	....	Stratus	4-4	Hidden	....	.....			....	....	Cloudy.
	7 7 a. m.	29.23	73	67	29.105	66	63	84	0	0	0	....	Stratus	4-4	Hidden	....	.....			....	....	Cloudy.
	11 32 a. m.	29.23	78	75	29.092	74	64	55	S.W.	10	.50	147	Hazy	....	Cumulus	4-4	W.			....	....	Cloudy.
	2 0 p. m.	29.18	79	76.5	29.039	75.5	64	50	S.W.	16	1.28	....	Cum.-strat	4-4	Hidden	....	.....			....	....	Cloudy.
	4 7 p. m.	29.16	78	76	29.022	75	65	56	S.W.	12	.72	....	Cum.-strat	4-4	Hidden	....	.....			....	....	Cloudy.
	9 0 p. m.	29.17	76	71	29.057	70	66	79	S.W.	4	.08	....	Stratus	4-4	Hidden	....	.....			....	....	Cloudy.
	10 32 p. m.	29.17	75	71	29.046	70	66	79	S.W.	4	.08	....	Stratus	4-4	Hidden	....	.....			....	....	Cloudy.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.71	50	47	23.66	47	46	92	S.W.	36	6.48	....	0	0	Cumulus	4-4	S.W.	.....	.....	....	....	Cloudy.
	2 0 a. m.	23.72	50	47	23.67	47	46	92	S.W.	24	2.88	....	0	0	Cumulus	4-4	S.W.	1.23 a. m.	1.38 a. m.	.01	....	Cloudy.
	3 0 a. m.	23.73	51	47	23.67	47	46.5	96	S.W.	24	2.88	....	0	0	Cumulus	4-4	S.W.	.....	.....	....	....	Cloudy.
	4 0 a. m.	23.74	52	47	23.68	47	47	100	S.W.	28	3.92	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23.73	51	48	23.67	48	48	100	W.	22	2.42	....	Fog	....	Hidden	....	.....	4.07 a. m.	4.40 a. m.	.01	....	Foggy.
	6 0 a. m.	23.74	51	48	23.68	48	48	100	W.	24	2.88	....	Nimbus	4-4	Hidden	....	.....	5.20 a. m.	.....	.02	....	Light rain.
	7 14 a. m.	23.75	51	50	23.69	50	50	100	W.	22	2.42	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.01	....	Light rain.
	8 0 a. m.	23.76	52	50	23.70	50	50	100	W.	15	1.12	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.01	....	Light rain.
	9 0 a. m.	23.77	54	51	23.71	51	51	100	W.	17	1.44	....	Fog	....	Hidden	....	.....	.....	8.45 a. m.	.01	....	Foggy.
	10 0 a. m.	23.78	57	53	23.71	53	53	100	W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	11 0 a. m.	23.79	59	52	23.72	52	52	100	W.	13	.84	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 m.	23.78	56	53	23.71	53	53	100	S.W.	12	.72	462	Nimbus	4-4	Hidden	....	.....	11.35 a. m.	.....	.01	....	Light rain.
	1 0 p. m.	23.77	56	54	23.70	54	54	100	S.W.	12	.72	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.14	....	Light rain.
	2 0 p. m.	23.76	56	54	23.69	54	54	100	S.W.	12	.72	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.08	....	Light rain.
	3 0 p. m.	23.75	56	55	23.68	55	55	100	W.	12	.72	....	Fog	....	Hidden	....	.....	.....	2.40 p. m.	.02	....	Foggy.
	4 14 p. m.	23.75	57	54	23.68	54	54	100	W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 p. m.	23.76	59	54	23.69	54	54	100	N.W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 p. m.	23.76	55	53	23.69	53	53	100	S.W.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 0 p. m.	23.76	56	53	23.69	53	53	100	W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 p. m.	23.77	56	53	23.70	53	53	100	S.W.	16	1.28	....	Nimbus	4-4	Hidden	....	.....	7.35 p. m.	.....	.02	....	Light rain.
	9 0 p. m.	23.76	56	52	23.69	52	52	100	W.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.07	....	Light rain.
	10 0 p. m.	23.77	56	52	23.70	52	52	100	S.W.	20	2.00	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.08	....	Light rain.
	10 39 p. m.	23.76	56	52	23.69	52	52	100	S.W.	16	1.28	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.01	....	Light rain.
	12 0 p. m.	23.76	56	52	23.69	52	52	100	W.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.11	....	Light rain.
Knoxville, Tenn..	7 0 a. m.	29.21	74	70	29.082	69	64	79	S.W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	7 7 a. m.	29.21	74	70	29.082	69	64	79	S.W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	11 32 a. m.	29.21	75	70	29.080	69	67	90	S.W.	12	.72	201	Nimbus	4-4	Hidden	....	.....	.....	.....	....	....	Light rain.
	2 0 p. m.	29.17	77	72	29.034	71	70	95	S.W.	12	.72	....	Nimbus	4-4	Hidden	....	.....	1.30 p. m.	.....	....	....	Heavy rain.
	4 7 p. m.	29.16	76	68	29.024	67	67	100	S.W.	12	.72	....	Nimbus	4-4	Hidden	....	.....	3.30 p. m.	2.30 p. m.	1.07	....	Heavy rain.
	9 0 p. m.	29.15	73	70	29.025	69	68	95	S.W.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	4.30 p. m.	....	....	Light rain.
	10 32 p. m.	29.15	75	70	29.020	69	67	90	S.	8	.32	....	Stratus	4-4	Hidden	....	.....	9.00 p. m.	10.00 p. m.	.63	....	Cloudy.

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Meteorological record for June 12, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM.		HYGROM.		Corrected barometer.	Relative humidity.	WIND.			LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Thermometer. daily mean.	Remarks.
			Attached.	Exposed.	Dry bulb.	Wet bulb.			Direction.	Velocity per hour.	Pressure per sq. ft.	Kind.	Amount.	Kind.	Amount.	Direction (moving from—)	Commen'd.	Ended.			
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.75	55	52	52	52	23.68	100	N. W.	14	.98	Fog	....	Hidden	....	....	....	12.40 a. m.	.03	....	Foggy.
	2 0 a. m.	23.75	55	52	52	52	23.68	100	W.	12	.72	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	3 0 a. m.	23.74	55	52	52	52	23.67	100	W.	10	.50	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	4 0 a. m.	23.73	55	52	52	52	23.66	100	S. W.	13	.84	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	5 0 a. m.	23.73	55	52	52	52	23.66	100	W.	16	1.28	Fog	....	Hidden	....	....	4.05 a. m.	4.25 a. m.	.04	....	Foggy.
	6 0 a. m.	23.74	55	52	52	52	23.67	100	S. W.	14	.98	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	7 8 a. m.	23.74	55	52	52	52	23.67	100	S. W.	12	.72	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	8 0 a. m.	23.75	56	53	53	53	23.68	100	S. W.	11	.60	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	9 0 a. m.	23.75	56	53	53	53	23.68	100	W.	10	.50	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	10 0 a. m.	23.76	55	54	54	54	23.69	100	N. E.	12	.72	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	11 0 a. m.	23.75	56	54	55	55	23.68	94	N. E.	10	.50	Light fog	....	Cumulus	4-4	N. E.	....	....	....	....	Cloudy.
	12 0 m.	23.75	56	54	55	55	23.68	100	S.	8	.32	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	1 0 p. m.	23.75	56	56	56	56	23.68	94	N. E.	6	.18	Light fog	....	Cumulus	4-4	N. E.	12.05 p. m.	12.26 p. m.	.02	....	Cloudy.
	2 0 p. m.	23.74	56	56	56	56	23.67	100	N. E.	8	.32	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	3 0 p. m.	23.74	59	53	53	53	23.67	100	N. E.	9	.40	Fog	....	Hidden	....	....	2.20 p. m.	2.45 p. m.	.03	....	Foggy.
	4 14 p. m.	23.74	59	53	53	53	23.67	100	N. E.	12	.72	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	5 0 p. m.	23.73	58	53	53	53	23.66	100	E.	12	.72	Nimbus	4-4	Hidden	....	....	4.18 p. m.	....	.09	....	Light rain.
	6 0 p. m.	23.75	58	51	51	51	23.68	100	E.	12	.72	Nimbus	4-4	Hidden	....	....	....	....	.12	....	Light rain.
	7 0 p. m.	23.75	57	51	51	51	23.68	100	E.	14	.98	Nimbus	4-4	Hidden	....	....	....	....	.09	....	Light rain.
	8 0 p. m.	23.75	57	50	50	50	23.68	100	E.	12	.72	Nimbus	4-4	Hidden	....	....	....	....	.03	....	Light rain.
	9 0 p. m.	23.76	56	48	48	48	23.69	100	E.	16	1.26	Nimbus	4-4	Hidden	....	....	....	....	.03	....	Light rain.
	10 0 p. m.	23.76	55	48	48	48	23.69	100	E.	14	.98	Nimbus	4-4	Hidden	....	....	....	....	.01	....	Light rain.
	30 p. m.	23.75	55	48	48	48	23.68	100	E.	13	.84	Nimbus	4-4	Hidden	....	....	....	....	.01	....	Light rain.
	12 0 p. m.	23.75	53	47	47	47	23.69	100	E.	12	.72	Nimbus	4-4	Hidden	....	....	....	12.10 a. m.	.03	....	Light rain.
Knoxville, Tenn.	7 0 a. m.	29.20	74	70.5	69	67	29.02	83	N.	4	.08	Stratus	3-4	0	0	0	D'g night.	D'g night.	.04	....	Clearing.
	7 a. m.	29.20	74	70.5	69	67	29.02	83	N.	4	.08	Stratus	3-4	0	0	0	....	....	....	....	Clearing.
	32 a. m.	29.18	70	70	69	67	29.01	83	N. E.	4	.08	Stratus	1-8	Clr. & cn	3-4	N. E.	....	....	....	....	Cloudy.
	2 0 p. m.	29.15	80	70	70	67	29.02	61	N. E.	5	1.25	Stratus	1-4	Clr. & cn.	2-4	0	....	....	....	....	Cloudy.
	4 7 p. m.	29.14	80	74	71	69	29.00	65	N. E.	12	.72	Stratus	1-4	Cumulus.	2-4	0	....	....	....	....	Clearing.
	9 0 p. m.	29.14	76	73	69	67	29.00	80	N. E.	6	.18	Stratus	1-4	0	0	0	....	....	....	....	Fair.
	10 32 p. m.	30.14	76	72	71	69	29.00	79	E.	4	.08	0	0	Clr. & cn	2-4	S. W.	....	....	....	....	Fair.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.74	53	47	23.68	47	47	100	N. E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	2 0 a. m.	23.73	53	47	23.67	47	47	100	N. E	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	3 0 a. m.	23.72	53	47	23.66	47	47	100	E.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	4 0 a. m.	23.72	54	48	23.67	48	48	100	N. E.	2	.02	....	Light fog	....	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
	5 0 a. m.	23.73	51	48	23.67	48	48	100	W.	4	.08	....	Light fog	....	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
	6 0 a. m.	23.73	54	48	23.67	48	48	100	W.	2	.02	....	Light fog	....	Cumulus	1-4	W.	.....	.....	.....	.....	Fair.
	7 14 a. m.	23.72	54	50	23.66	50	50	100	N. E.	2	.02	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	8 0 a. m.	23.72	54	52	23.66	52	52	100	N.	2	.02	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	9 0 a. m.	23.71	55	55	23.64	55	55	100	N.	2	.02	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	10 0 a. m.	23.72	56	57	23.65	57	57	100	N.	1	.01	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	11 0 a. m.	23.73	57	55	23.66	55	54	93	N. W.	2	.02	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	12 0 m ..	23.73	57	56	23.66	56	55	94	W.	2	.02	177	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	1 0 p. m.	23.73	58	56	23.66	56	54	87	N. W.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	2 0 p. m.	23.72	59	57	23.65	57	55	87	W.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	3 0 p. m.	23.70	61	57	23.62	57	55	87	N. W.	2	.02	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	4 14 p. m.	23.69	60	58	23.61	58	56	88	N. W.	1	.01	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	5 0 p. m.	23.69	58	55	23.62	55	53	87	N. W.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	6 0 p. m.	23.67	55	54	23.61	54	52	87	S. W.	4	.08	....	Light fog	....	Cumulus	3-4	0	.....	.....	.....	.....	Foggy.
	7 0 p. m.	23.67	53	51	23.61	51	51	100	W.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	8 0 p. m.	23.66	56	51	23.59	51	50	93	S. W.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	9 0 p. m.	23.66	56	48	23.59	48	48	100	S. W.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	10 0 p. m.	23.67	57	48	23.60	48	48	100	E.	9	.40	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	10 39 p. m.	23.67	56	48	23.60	48	48	100	E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	12 0 p. m.	23.66	54	47	23.60	47	47	100	E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
Knoxville, Tenn .	7 0 a. m.	29.14	74	68	29.012	67	64	84	N. E.	6	.18	....	Stratus ...	1-8	Cir.-cum	3-4	S. W.	.....	.....	.....	.....	Cloudy.
	7 7 a. m.	29.14	74	68	29.012	67	64	84	N. E.	6	.18	....	Stratus ...	1-8	Cir.-cum	3-4	S. W.	.....	.....	.....	.....	Cloudy.
	11 33 a. m.	29.14	79	78	28.999	77	71	72	S. E.	4	.08	149	0	0	Cumulus	4-4	S. W.	.....	.....	.....	.....	Cloudy.
	2 0 p. m.	29.09	81	78	28.944	77	70	69	S. W.	16	1.28	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	.....	Threatening.
	4 7 p. m.	29.08	80	76	28.937	75	71	81	E.	9	.40	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	.....	Cloudy.
	9 0 p. m.	29.02	75	68	28.890	67	65	90	S. W.	5	.12	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	.....	Threatening.
	10 32 p. m.	29.03	76	67	28.897	66	65	94	E.	6	.18	....	Nimbus...	4-4	Hidden	....	.....	9.45 p. m.	.....	.07	....	Light rain.

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Meteorological record for June 14, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM.		Corrected barometer.	HYGROM.			WIND.				LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
			Attached.	Exposed.		Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from—)	Commen'd.	Ended.			
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.64	54	46	23.58	46	46	100	S. E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23.63	53	47	23.57	47	47	100	S. W.	12	.72	....	Nimbus	4-4	Hidden	....	.....	1.35 a. m.	.....	.01	....	Light rain.
	3 0 a. m.	23.62	52	48	23.56	48	48	100	S. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	2.49 a. m.	.04	....	Foggy.
	4 0 a. m.	23.61	52	48	23.55	48	48	100	S. W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23.60	52	48	23.54	48	48	100	S. W.	22	2.42	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	23.60	52	49	23.54	49	49	100	S.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23.60	52	50	23.54	50	50	100	S. E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 a. m.	23.61	52	50	23.55	50	50	100	S. E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 a. m.	23.62	53	51	23.56	51	51	100	S. E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 a. m.	23.61	55	52	23.55	52	52	100	S. E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	11 0 a. m.	23.62	57	53	23.55	53	53	100	S. E.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 m...	23.61	57	52	23.54	52	52	100	E.	8	.32	211	Nimbus	4-4	Hidden	....	.....	11.15 a. m.	.....	.28	....	Heavy rain.
	1 0 p. m.	23.60	56	53	23.53	53	53	100	S. E.	6	.18	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.09	....	Light rain.
	2 0 p. m.	23.59	56	53	23.52	53	53	100	S.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.01	....	Light rain.
	3 0 p. m.	23.58	55	53	23.52	53	53	100	S.	6	.18	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.11	....	Light rain.
	4 14 p. m.	23.57	55	51	23.51	51	51	100	W.	5	.12	....	Nimbus	2-4	Cumulus	1-4	W.	.....	.....	.29	....	Light rain.
	5 0 p. m.	23.56	56	53	23.49	53	53	100	E.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.02	....	Light rain.
	6 0 p. m.	23.55	56	52	23.48	52	52	100	S. W.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.03	....	Light rain.
	7 0 p. m.	23.55	53	51	23.49	51	51	100	S. W.	8	.32	....	0	0	Cumulus	4-4	S. W.	.....	6.15 p. m.	.01	....	Cloudy.
	8 0 p. m.	23.55	53	50	23.49	50	49	93	S. W.	8	.32	....	0	0	Cumulus	4-4	S. W.	.....	.....	....	....	Cloudy.
	9 0 p. m.	23.56	54	49	23.50	49	48.5	96	S. W.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 p. m.	23.57	54	49	23.51	49	48.5	96	W.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 39 p. m.	23.58	54	49	23.52	49	48	93	W.	4	.08	....	Light fog	....	Cumulus	1-4	0	.....	.....	....	....	Fair.
	12 0 p. m.	23.56	53	48	23.50	48	47.5	96	W.	4	.08	....	0	0	Cirrus	2-4	S.	.....	.....	....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.00	74	67	28.872	66	65	94	E.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	7 7 a. m.	29.00	74	67	28.872	66	65	94	E.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	11.30 p. m.	....	....	Cloudy.
	11 32 a. m.	29.00	74	65	28.872	64	63	94	W.	20	2.00	135	Nimbus	4-4	Hidden	....	.....	.....	.....	....	....	Heavy rain.
	2 0 p. m.	28.94	75	69	28.810	68	66	90	S.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	4 7 p. m.	28.91	77	71	28.774	70	67	84	N.	3	.04	....	Cum.-strat	2-4	Cirrus	1-4	0	11.45 a. m.	1.30 p. m.	.75	....	Clearing.
	9 0 p. m.	28.93	73	68	28.805	67	64	84	E.	2	.02	....	Stratus	1-4	0	0	0	.....	.....	....	....	Fair.
	10 38 p. m.	28.93	73	66	28.825	65	63.5	92	0	0	0	....	Cir.-strat.	1-4	Hazy	....	.....	.....	.....	....	....	Fair.

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Meteorological record for June 15, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.54	52	47	23.48	47	46.5	96	N. W.	14	.98	....	0	0	Cirrus...	1-4	0	.....	.....	....	....	Fair.
	2 0 a. m.	23.55	52	47	23.49	47	47	100	W.	16	1.28	....	Fog	....	Hidden..	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.54	52	46	23.48	46	46	100	N. W.	20	2.00	....	Fog.....	....	Hidden..	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23.53	51	47	23.47	47	47	100	N. W.	24	2.88	....	Light fog	....	Cirrus...	....	0	.....	.....	....	....	Fair.
	5 0 a. m.	23.54	51	47	23.48	47	47	100	W.	20	2.00	....	Fog.....	....	Hidden..	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	23.55	51	48	23.49	48	48	100	W.	20	2.00	....	Fog.....	....	Hidden..	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23.56	51	49	23.50	49	49	100	N. W.	18	1.62	....	Fog.....	....	Hidden..	....	.....	.....	.....	....	....	Foggy.
	8 0 a. m.	23.57	51	49	23.51	49	49	100	W.	19	1.80	....	Fog.....	....	Hipden..	....	.....	.....	.....	....	....	Foggy.
	9 0 a. m.	23.58	52	50	23.52	50	50	100	N. W.	20	2.00	....	Fog.....	....	Hidden..	....	.....	.....	.....	....	....	Foggy.
	10 0 a. m.	23.60	53	52	23.54	52	52	100	N. W.	17	1.44	....	Fog.....	....	Hidden..	....	.....	.....	.....	....	....	Foggy.
	11 0 a. m.	23.63	56	53	23.56	53	53	100	N. W.	14	.98	....	Fog.....	....	Hidden..	....	.....	.....	.....	....	....	Foggy.
	12 0 m...	23.65	59	53	23.58	53	53	100	N. W.	12	.72	293	Fog.....	....	Hidden..	....	.....	.....	.....	....	....	Foggy.
	1 0 p. m.	23.67	56	53	23.60	53	53	100	N. W.	14	.98	....	Fog.....	....	Hidden..	....	.....	.....	.....	....	....	Foggy.
	2 0 p. m.	23.68	56	55	23.61	55	54	93	N. W.	14	.98	....	Light fog	....	Cumulus	3-4	N. W.	.....	.....	....	....	Foggy.
	3 0 p. m.	23.68	56	55	23.61	55	53	87	N. W.	13	.84	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	4 41 p. m.	23.70	60	56	23.62	56	54	87	N. W.	8	.32	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	5 0 p. m.	23.70	60	55	23.62	55	53	87	N. W.	12	.72	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Clondy.
	6 0 p. m.	23.68	57	56	23.61	56	54	87	N. W.	12	.72	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	7 0 p. m.	23.70	56	52	23.63	52	51	93	N. W.	7	.24	....	Hazy	....	Cumulus	2-4	0	.....	.....	....	....	Fair.
	8 0 p. m.	23.71	57	51	23.64	51	50	93	N. W.	8	.32	....	Hazy	....	Cir., cum	2-4	0	.....	.....	....	....	Fair.
	9 0 p. m.	23.72	57	50	23.65	50	49	93	N. W.	8	.32	....	Hazy	....	Cir., cum	1-4	0	.....	.....	....	....	Fair.
	10 0 p. m.	23.73	57	51	23.66	51	49.5	89	N. W.	6	.18	....	0	0	Cirrus...	1-4	0	.....	.....	....	....	Fair.
	10 39 p. m.	23.73	57	50	23.66	50	49	93	N. W.	6	.18	....	0	0	Cirrus...	1-4	0	.....	.....	....	....	Fair.
	12 0 p. m.	23.72	56	50	23.65	50	49.5	96	N. W.	6	.18	....	Light fog	....	0	0	0	.....	.....	....	....	Fair.
Knoxville, Tenn..	7 0 a. m.	29.04	71	66	28.920	65	64	95	0	0	0	....	Fog.....	....	Hidden..	....	.....	.....	.....	....	....	Foggy.
	7 7 a. m.	29.04	71	66	28.920	65	64	95	0	0	0	....	Fog.....	....	Hidden..	....	.....	.....	.....	....	....	Foggy.
	11 32 a. m.	29.07	76	77	28.937	70	69	69	S. E.	3	.14	56	Hazy	....	Cu. & cir	2-4	N.	.....	.....	....	....	Fair.
	2 0 p. m.	29.06	78	82	28.922	81	72	62	S. E.	2	.02	....	Hazy	....	Cumulus	2-4	N.	.....	.....	....	....	Fair.
	4 7 p. m.	29.05	80	85	28.907	84	74	61	W.	4	.08	....	0	0	Cu. & cir	3-4	N. W.	.....	.....	....	....	Fair.
	9 0 p. m.	29.09	77	75	28.954	74	71	83	S. W.	2	.02	....	0	0	Cirrus...	2-4	0	.....	.....	....	....	Fair.
	10 32 p. m.	29.09	76	72	28.957	71	70	92	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear

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Meteorological record for June 16, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from -)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.72	56	50	23.65	50	49.5	96	N. W.	5	.12	....	Light fog	....	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	2 0 a. m.	23.72	56	50	23.65	50	49.5	96	W.	6	.18	....	Light fog	....	0	0	0	.....	.....	.....	....	Fair.
	3 0 a. m.	23.72	55	50	23.66	50	50	100	W.	6	.18	....	Fog	....	Cumulus	1-4	0	.....	.....	.....	....	Foggy.
	4 0 a. m.	23.72	55	50	23.66	50	50	100	W.	12	.72	....	Fog	....	Cumulus	2-4	W.	.....	.....	.....	....	Foggy.
	5 0 a. m.	23.74	55	50	23.68	50	49	93	N. W.	8	.32	....	Light fog	....	Cumulus	1-4	N. W.	.....	.....	.....	....	Fair.
	6 0 a. m.	23.76	52	53	23.70	53	44	42	N. E.	11	.60	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	....	Fair.
	7 14 a. m.	23.78	52	54	23.72	54	46	49	N. E.	8	.32	....	Hazy	....	Cumulus	1-4	0	.....	.....	.....	....	Fair.
	8 0 a. m.	23.79	53	58	23.73	58	50	53	N.	6	.18	....	Hazy	....	Cir. & cum.	1-4	0	.....	.....	.....	....	Fair.
	9 0 a. m.	23.81	59	59	23.74	59	51	54	N. E.	4	.08	....	Hazy	....	Cir., cum.	1-4	E.	.....	.....	.....	....	Fair.
	10 0 a. m.	23.82	62	62	23.74	62	55	61	N. E.	3	.04	....	Hazy	....	Cumulus	2-4	N. E.	.....	.....	.....	....	Fair.
	11 0 a. m.	23.84	62	61	23.76	61	54	61	N. W.	1	.01	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	12 0 m ..	23.84	62	64	23.76	64	56	57	S. W.	2	.02	184	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	1 0 p. m.	23.82	63	63	23.74	63	52	72	S. W.	1	.01	....	Hazy	....	Cir., cum.	4-4	0	.....	.....	.....	....	Cloudy.
	2 0 p. m.	23.80	64	62	23.72	62	56	66	N. W.	4	.08	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	.....	....	Cloudy.
	3 0 p. m.	23.80	64	65	23.72	65	58	63	N. W.	1	.01	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	4 14 p. m.	23.78	64	63	23.70	63	57	67	S. W.	2	.02	....	Hazy	....	Cir., cum.	4-4	S. W.	.....	.....	.....	....	Cloudy.
	5 0 p. m.	23.78	63	59	23.70	59	55	76	W.	4	.08	....	Hazy	....	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	6 0 p. m.	23.78	61	58	23.71	58	54	76	W.	4	.08	....	Hazy	....	Cumulus	2-4	0	.....	.....	.....	....	Fair.
	7 0 p. m.	23.78	58	56	23.71	56	54	87	W.	10	.50	....	Hazy	....	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	8 0 p. m.	23.79	60	54	23.71	54	52	87	W.	8	.32	....	Hazy	....	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	9 0 p. m.	23.79	61	53	23.71	53	52	93	W.	4	.08	....	0	0	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	10 0 p. m.	23.79	60	54	23.71	54	52	87	W.	8	.32	....	0	0	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	10 39 p. m.	23.70	60	53	23.71	53	52	93	N. W.	8	.32	....	0	0	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	12 0 p. m.	23.78	59	52	23.71	52	50	87	N. W.	8	.32	....	0	0	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
Knoxville, Tenn.	7 0 a. m.	29.17	71	68	29.050	67	66	94	0	0	0	....	Fog	....	Clr.-cum	4-4	0	.....	.....	.....	....	Cloudy.
	7 7 a. m.	29.17	71	68	29.050	67	66	94	0	0	0	....	Fog	....	Cir. cum	4-4	0	.....	.....	.....	....	Cloudy.
	11 32 a. m.	29.19	83	80	29.039	79	71	65	N. E.	2	.02	51	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	2 0 p. m.	29.17	83	82	29.019	81	70	55	S. W.	3	.04	....	Stratus	3-4	0	0	0	.....	.....	.....	....	Threatening.
	4 7 p. m.	29.16	78	73	29.022	72	69	85	S.	9	.40	....	Nimbus	4-4	Hidden	....	.....	3.45 p. m.	.....	.01	....	Light rain.
	9 0 p. m.	29.15	75	70	29.020	69	67	90	W.	2	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	10 32 p. m.	29.17	70	70	29.052	69	67	90	W.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	5.00 p. m.	.01	....	Cloudy.

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Meteorological record for June 17, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.78	59	52	23.71	52	50	87	N. W.	6	.18	....	0	0	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	2 0 a. m.	23.77	58	52	23.70	52	50	87	N. W.	8	.32	....	0	0	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	3 0 a. m.	23.76	58	53	23.69	53	50	80	N. W.	4	.08	....	0	0	Cir., cum	3-4	W.	.....	.....	....	....	Cloudy.
	4 0 a. m.	23.75	56	53	23.68	53	48	67	N. E.	9	.40	....	0	0	Cir., cum	4-4	W.	.....	.....	....	....	Cloudy.
	5 0 a. m.	23.75	56	54	23.68	54	48	61	N. E.	9	.40	....	0	0	Cir., cum	3-4	W.	.....	.....	....	....	Cloudy.
	6 0 a. m.	23.76	56	56	23.69	56	49	57	N. E.	7	.24	....	Hazy	....	Cir., cum	1-4	W.	.....	.....	....	....	Fair.
	7 14 a. m.	23.78	57	64	23.71	64	58	59	N. E.	3	.04	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	8 0 a. m.	23.80	57	63	23.73	63	54	52	N. E.	1	.01	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	....	...	Fair.
	9 0 a. m.	23.80	61	64	23.72	64	57	62	S.	1	.01	....	Hazy	....	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	10 0 a. m.	23.80	58	64	23.73	64	57	62	S.	1	.01	....	Hazy	....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
	11 0 a. m.	23.81	62	62	23.73	62	57	72	S. W.	2	.02	....	Hazy	....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
	12 0 m...	23.80	63	60	23.72	60	56	76	N. W.	1	.01	114	Hazy	....	Cumulus	4-4	S.	.....	.....	....	....	Cloudy.
	1 0 p. m.	23.79	64	65	23.71	65	60	73	N.	1	.01	....	Hazy	....	Cumulus	1-4	W.	.....	.....	....	....	Cloudy.
	2 0 p. m.	23.78	67	62	23.69	62	57	72	N. W.	4	.08	....	Hazy	....	Cumulus	1-4	S. W.	.....	.....	....	....	Cloudy.
	3 0 p. m.	23.76	65	64	23.67	64	59	73	S. W.	4	.08	....	Hazy	....	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy.
	4 14 p. m.	23.76	66	62	23.67	62	56	66	W.	8	.32	....	Hazy	....	Cumulus	2-4	W.	.....	.....	....	....	Cloudy.
	5 0 p. m.	23.76	66	63	23.67	63	58	72	W.	6	.18	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Cloudy.
	6 0 p. m.	23.77	63	59	23.69	59	56	82	W.	8	.32	....	Hazy	....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
	7 0 p. m.	23.76	61	55	23.68	55	54	93	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 p. m.	23.76	61	55	23.68	55	54.5	97	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 p. m.	23.77	62	54	23.69	54	54	100	S. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 p. m.	23.76	62	55	23.68	55	55	100	S. W.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 39 p. m.	23.75	61	55	23.67	55	55	100	S. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 p. m.	33.74	60	54	23.66	54	54	100	S. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
Knoxville, Tenn.	7 0 ..	29.16	74	69	29.032	68	66	90	S. W.	2	.02	....	Nimbus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	7 7 .. m.	29.16	74	69	29.032	68	66	90	S. W.	2	.02	....	Nimbus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	11 32 a. m.	29.20	77	72	29.064	71	67	80	W.	2	.02	74	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	2 0 p. m.	29.13	80	79	28.987	78	72	75	S. E.	3	.04	....	Hazy	....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
	4 7 p. m.	29.13	83	83	28.979	82	74	67	W.	3	.04	....	0	0	Cir.-cum	3-4	S. W.	8.00 a. m.	11.00 a. m.	0.11	....	Cloudy.
	9 0 p. m.	29.12	77	75	28.984	74	73	95	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Threatening.
	10 32 p. m.	29.10	76	72	28.967	71	68	85	S.	2	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Threatening.

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Meteorological record for June 18, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM- Attached.	THERM- Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.74	60	54	23.66	54	53.5	97	W.	12	.72	....	Fog	....	0	0	0	.....	.....	.....	.....	Foggy.
	2 0 a. m.	23.73	59	53	23.66	53	52.5	97	S. W.	16	1.28	....	Light fog	....	Cir., cum	2-4	W.	.....	.....	.....	.....	Fair.
	3 0 a. m.	23.71	58	53	22.64	53	52.5	97	S. W.	18	1.62	....	Light fog	....	Cirrus ..	2-4	W.	.....	.....	.....	.....	Fair.
	4 0 a. m.	23.71	57	53	23.64	53	52.5	97	W.	16	1.28	....	Light fog	....	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	5 0 a. m.	23.72	57	53	23.65	53	53	100	S. W.	16	1.28	....	Fog	....	Cumulus	2-4	W.	.....	.....	.....	.....	Foggy.
	6 0 a. m.	23.73	58	54	23.70	54	54	100	S. W.	12	.72	....	Fog	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	7 14 a. m.	23.74	58	54	23.67	54	54	100	W.	16	1.28	....	Fog	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	8 0 a. m.	23.74	58	55	23.67	55	55	100	W.	16	1.28	....	Fog	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	9 0 a. m.	23.75	59	59	23.68	59	58	94	W.	12	.72	....	Light fog	....	Cumulus	1-4	W.	.....	.....	.....	.....	Fair.
	10 0 a. m.	23.77	60	58	23.69	58	56	88	W.	8	.32	....	Hazy	....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	11 0 a. m.	23.77	60	61	23.69	61	57	77	W.	12	.72	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	12 0 m ..	23.77	60	65	23.69	65	59	68	W.	6	.18	242	Hazy	....	Cumulus	3-4	W.	2.15 p. m.	.....	.06	....	Cloudy.
	1 0 p. m.	23.77	63	63	23.69	63	57	67	W.	8	.32	....	Hazy	....	Cumulus	3-4	W.	.....	.....	.07	....	Cloudy.
	2 0 p. m.	23.76	63	63	23.68	63	57	67	W.	6	.18	...	Hazy	....	Cumulus	4-4	N. W.	.....	4.21 p. m.	.01	....	Threatening; heavy thunder-storm S. W.
	3 0 p. m.	23.72	58	56	23.65	56	55	93	S. W.	16	1.28	....	Nimbus...	3-4	Cumulus	3-4	W.	.....	.....	.....	.....	Light rain.
	4 14 p. m.	23.72	61	57	23.64	57	56	94	W.	12	.72	....	Nimbus...	1-4	Cumulus	3-4	W.	.....	.....	.....	.....	Light rain.
	5 0 p. m.	23.72	59	58	23.65	58	57	94	W.	12	.72	....	Fog	....	Cumulus	1-4	W.	.....	.....	.....	.....	Foggy.
	6 0 p. m.	23.73	60	58	23.65	58	56	88	S. W.	12	.72	....	Hazy	....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	7 0 p. m.	23.73	61	57	23.65	57	56	94	W.	20	2.00	....	Light fog	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	8 0 p. m.	23.73	61	56	23.65	56	56	100	W.	14	.98	....	Fog	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	9 0 p. m.	23.74	61	56	22.66	56	56	100	S. W.	16	1.28	....	Fog	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	10 0 p. m.	23.75	60	56	23.67	56	56	100	S. W.	18	1.62	....	Fog	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	10 39 p. m.	23.74	60	56	23.66	56	56	100	W.	16	1.28	....	Fog	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	12 0 p. m.	23.73	60	55	23.65	55	55	100	W.	16	1.28	....	Fog	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
Knoxville, Tenn .	7 0 a. m.	29.13	74	70	29.002	69	67	90	W.	12	.72	....	Stratus ...	4-4	Hidden .	....	.....	.....	.....	.....	.....	Cloudy.
	7 7 a. m.	29.13	74	70	29.002	69	67	90	W.	12	.72	....	Stratus ...	4-4	Hidden .	....	.....	.....	.....	.....	.....	Cloudy.
	11 32 a. m.	29.14	78	76	29.002	75	70	76	S.	16	1.28	194	Stratus ...	4-4	Hidden .	....	.....	.....	.....	.....	.....	Cloudy.
	2 0 p. m.	29.09	79	81	28.949	80	73	70	S.	11	.60	....	0	0	Cumulus	1-4	W.	.....	.....	.....	.....	Fair.
	4 7 p. m.	29.06	81	83	28.914	82	72	59	S.	9	.40	....	0	0	Cu. & cir	2-4	S. W.	.....	.....	.....	.....	Fair.
	9 0 p. m.	29.08	80	77	28.937	76	70	72	S. W.	8	.32	....	Stratus ...	1-4	0	0	0	.....	.....	.....	.....	Fair.
	10 32 p. m.	29.07	78	75	28.939	74	69	76	S. W.	6	.18	....	0	0	0	0	0	.....	.....	.....	.....	Clear.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.72	60	54	23.64	54	54	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23.72	59	53	23.65	53	53	100	N. W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.73	58	53	23.66	53	53	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23.72	58	53	23.65	53	53	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23.72	58	52	23.65	52	52	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	23.73	57	52	23.66	52	52	100	W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23.73	57	52	23.68	52	52	100	W.	18	1.62	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 a. m.	23.77	57	53	23.70	53	53	100	W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 a. m.	23.78	56	53	23.71	53	53	100	W.	19	1.80	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 a. m.	23.80	59	55	23.73	55	55	100	W.	19	1.80	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	11 0 a. m.	23.79	59	60	23.72	60	57	82	N. W.	16	1.28	....	Hazy	....	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	12 0 m...	23.79	62	63	23.71	63	58	72	W.	12	.72	365	Hazy	....	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.
	1 0 p. m.	23.81	61	64	23.73	64	60	78	W.	8	.32	....	Hazy	....	Cir., cum	3-4	W.	.....	.....	....	....	Cloudy.
	2 0 p. m.	23.81	64	65	23.73	65	59	68	W.	8	.32	....	Hazy	....	Cumulus	4-4	S. W.	.....	.....	....	....	Cloudy, heavy thunder-storm in S. W.
	3 0 p. m.	23.78	61	60	23.70	60	59	94	W.	10	.50	....	Fog	....	0	0	0	2.15 p. m.	2.40 p. m.	.06	....	Foggy.
	4 14 p. m.	23.78	63	58	23.70	58	58	100	W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 p. m.	23.77	61	59	23.69	59	58	94	W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 p. m.	23.76	63	57	23.68	57	56	94	W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 0 p. m.	23.76	62	56	23.68	56	56	100	N. W.	12	.72	....	Nimbus	4-4	Hidden	....	.....	6.40 p. m.	7.05 p. m.	.03	....	Light rain.
	8 0 p. m.	23.75	63	55	23.67	55	55	100	W.	24	2.88	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 p. m.	23.73	61	55	23.65	55	55	100	N. W.	38	7.22	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 p. m.	23.74	60	55	23.66	55	55	100	N. W.	28	3.92	....	Nimbus	4-4	Hidden	....	.....	9.46 p. m.	.....	.03	....	Light rain.
	10 39 p. m.	23.73	60	55	23.65	55	55	100	W.	30	4.50	....	Fog	....	Hidden	....	.....	.....	10.30 p. m.	.02	....	Foggy.
	12 0 p. m.	23.71	59	54	23.64	54	54	100	W.	28	3.92	....	Fog	....	Hidden	....	.....	11.16 p. m.	11.34 p. m.	.01	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.18	76	72	29.047	71	68	85	S. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	7 7 a. m.	29.18	76	72	29.047	71	68	85	S. W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	11 32 a. m.	29.19	80	81	29.047	80	71	61	S. W.	12	.72	190	0	0	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy.
	2 0 p. m.	29.15	82	84	29.002	83	76	69	S. W.	12	.72	....	Stratus	2-4	Cumulus	1-4	0	.....	.....	....	....	Cloudy.
	4 7 p. m.	29.14	83	84	29.986	83	74	64	S. W.	8	.32	....	Stratus	1-4	Cumulus	2-4	W.	.....	.....	....	....	Cloudy.
	9 0 p. m.	29.16	79	73	29.019	72	69	85	S. W.	12	.72	....	Stratus	1-4	0	0	0	.....	.....	....	....	Fair.
	10 32 p. m.	29.17	77	72	29.034	71	68	87	S. W.	8	.32	....	Stratus	1-4	0	0	0	.....	.....	....	....	Fair.

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Meteorological record for June 20, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.70	50	54	23.63	54	54	100	W.	28	3.92	....	Nimbus...	4-4	Hidden	....	.....	12.05 a. m.	.....	.07	....	Light rain.
	2 0 a. m.	23.69	58	53	23.62	53	53	100	W.	24	2.88	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.04	....	Light rain.
	3 0 a. m.	23.69	58	53	23.62	53	53	100	W.	22	2.42	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.05	....	Light rain.
	4 0 a. m.	23.68	57	53	23.61	53	53	100	W.	32	5.12	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.07	....	Light rain.
	5 0 a. m.	23.68	57	53	23.61	53	53	100	W.	32	5.12	..	Fog.....	....	Hidden	....	.....	.....	4.18 a. m.	.01	....	Foggy.
	6 0 a. m.	23.69	57	53	23.62	53	53	100	W.	28	3.92	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	23.71	57	54	23.64	54	54	100	W.	26	3.33	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 a. m.	23.74	57	54	23.67	54	54	100	W.	22	2.42	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.76	58	54	23.69	54	54	100	N. W.	20	2.00	....	Nimbus...	4-4	Hidden	....	.....	8.10 a. m.	.....	.34	....	Heavy rain.
	10 0 a. m.	23.75	57	55	23.68	55	55	100	W.	22	3.92	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.27	....	Heavy rain.
	11 0 a. m.	23.75	57	55	23.68	55	55	100	W.	26	3.38	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.25	....	Heavy rain.
	12 0 m ..	23.77	58	55	23.70	55	55	100	N. W.	24	2.88	535	Nimbus...	4-4	Hidden	....	.....	.....	.....	.17	....	Heavy rain.
	1 0 p. m.	23.77	58	55	23.70	55	55	100	W.	24	2.88	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.18	....	Light rain.
	2 0 p. m.	23.75	58	56	23.68	56	56	100	W.	28	3.92	....	Fog.....	....	Hidden	....	.....	.....	1.10 p. m.	.01	....	Foggy.
	3 0 p. m.	23.74	58	57	23.67	57	57	100	W.	25	3.12	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 14 p. m.	23.73	58	56	23.66	56	56	100	W.	26	3.38	....	Fog.....	....	Hidden	....	.....	3.15 p. m.	3.50 p. m.	.04	....	Foggy.
	5 0 p. m.	23.73	59	56	23.66	56	56	100	W.	24	2.88	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 p. m.	23.74	59	56	23.67	56	56	100	N. W.	20	2.00	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 0 p. m.	23.76	58	55	23.69	55	55	100	W.	24	2.88	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 p. m.	23.77	59	55	23.70	55	55	100	W.	20	2.00	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 p. m.	23.77	58	56	23.70	56	56	100	N. W	20	2.00	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 p. m.	23.76	59	55	23.71	55	55	100	N. W.	18	1.62	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 30 p. m.	23.78	59	55	23.71	55	55	100	N. W.	18	1.62	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	12 0 p. m.	23.78	58	55	23.71	55	55	100	N. W.	18	1.62	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.19	76	72	29.057	71	69	90	S. W.	12	.72	...	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	7 7 a. m.	29.19	76	72	29.057	71	69	90	S. W.	12	.72	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	11 32 a. m.	29.20	82	83	29.052	82	72	59	S. W.	12	.72	225	Stratus ...	1-4	Cu. & cir	2-4	0	.....	.....	.....	....	Cloudy.
	2 0 p. m.	29.16	84	85	29.006	84	72	53	S. W.	12	.72	....	Stratus ...	2-4	Cumulus	2-4	N. W.	.....	.....	.....	....	Cloudy.
	4 7 p. m.	29.15	83	83	28.999	82	74	67	W.	4	.08	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Threatening.
	9 0 p. m.	29.15	80	77	29.007	76	73	86	S. W.	4	.08	....	Stratus ...	3-4	0	0	0	.....	.....	.....	....	Cloudy.
	10 32 p. m.	29.18	78	74	29.012	73	71	86	S.	0	.16	....	Stratus ...	1-4	Hazy	....	.....	4.45 p. m.	5.00 p. m.	.01	....	Fair.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.77	58	55	23.70	55	55	100	N. W.	17	1.44	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23.76	58	54	23.69	54	54	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.75	57	54	23.68	54	54	100	N. W.	17	1.44	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23.75	57	53	23.68	53	53	100	N. W.	16	1.28	....	Fog	....	0	0	0	.....	.....	....	....	Foggy.
	5 0 a. m.	23.76	57	53	23.69	53	53	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	23.78	57	54	23.71	54	54	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23.78	57	54	23.71	54	53	93	N. W.	12	.72	....	Light fog	....	Cumulus	1-4	0	.....	.....	....	....	Fair.
	8 0 a. m.	23.79	57	55	23.72	55	53	87	N. W.	8	.32	....	Hazy	....	Cumulus	1-4	0	.....	.....	....	....	Fair.
	9 0 a. m.	23.80	58	58	23.73	58	57	94	N. E	8	.32	....	Hazy	....	Cumulus	1-4	N. E.	.....	.....	....	....	Fair.
	10 0 a. m.	23.80	58	59	23.73	59	49	4	N. E.	4	.08	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	11 0 a. m.	23.81	60	64	23.73	64	53	43	N.	6	.18	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	12 0 m ..	23.82	62	66	23.74	66	55	45	N.	4	.08	4.9	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	1 0 p. m.	23.82	63	66	23.73	66	57	54	N. W.	4	.08	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	2 0 p. m.	23.82	68	67	23.73	67	60	64	N.	5	.12	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	3 0 p. m.	23.83	68	68	23.74	63	58	72	N. W.	4	.08	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	4 14 p. m.	23.82	67	66	23.73	66	62	70	W.	6	.18	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	5 0 p. m.	23.81	66	65	23.72	65	61	78	W.	4	.08	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	6 0 p. m.	23.80	64	61	23.72	61	59	88	N. W.	4	.08	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	7 0 p. m.	23.79	62	59	23.71	59	58	94	N. W.	5	.12	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	8 0 p. m.	23.78	58	55	23.71	55	53	87	W.	7	.24	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	....	....	Fair.
	9 0 p. m.	23.80	60	55	23.72	55	54	93	S. W.	8	.32	....	Hazy	....	Cumulus	1-4	S. W.	.....	.....	....	....	Fair.
	10 0 p. m.	23.80	60	54	23.72	54	53	93	S. W.	8	.32	....	0	0	Cumulus	1-4	0	.....	.....	....	....	Fair; heat-lightning on S. horizon.
	10 39 p. m.	23.80	61	55	23.72	55	54	93	S. W.	8	.32	....	Light fog	....	0	0	0	.....	.....	....	....	Fair.
	12 p. m.	23.80	60	53	23.72	53	51	86	S. W.	4	.08	....	Light fog	....	Cumulus	1-4	0	.....	.....	....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.17	77	72	29.034	71	70	95	S. W.	2	.02	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 7 a. m.	29.17	77	72	29.034	71	70	95	S. W.	2	.02	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	11 32 a. m.	29.18	81	84	29.034	83	72	53	S. W.	4	.08	117	0	0	Cumulus	1-4	W.	.....	.....	....	....	Fair.
	2 0 p. m.	29.16	83	88	29.009	87	73	46	W.	4	.08	....	0	0	Cumulus	1-4	0	.....	.....	....	....	Fair.
	4 7 p. m.	29.15	85	91	28.994	90	76	49	W.	5	.12	....	0	0	Cumulus	1-4	0	.....	.....	....	....	Fair.
	9 0 p. m.	29.13	80	76	28.987	75	72	85	S. W.	7	.24	....	0	0	Cir. & cu	3-4	0	.....	.....	....	....	Cloudy.
	10 32 p. m.	29.14	80	74	28.997	73	70	85	S. W.	5	.12	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.

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Meteorological record for June 22, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.79	59	52	23.72	52	50	86	S.W.	8	.32	....	0	0	Cumulus	1-4	0	.....	.....	....	....	Fair.
	2 0 a. m.	23.77	57	53	23.70	53	50	80	W.	12	.72	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	3 0 a. m.	23.76	56	52	23.69	52	49	79	W.	10	.50	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	4 0 a. m.	23.76	56	53	23.69	53	49	73	N. W.	12	.72	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	5 0 a. m.	23.77	56	53	23.70	53	50	80	N. W.	10	.50	....	Hazy	.....	Cirrus ..	1-4	N. W.	.....	.....	....	....	Fair.
	6 0 a. m.	23.78	56	58	23.71	58	56	76	N. W.	6	.18	....	Hazy	.....	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	7 14 a. m.	23.80	57	59	23.73	59	55	76	W.	2	.02	....	Hazy	.....	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	8 0 a. m.	23.81	58	60	23.74	60	56	76	W.	3	.04	....	Hazy	.....	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	9 0 a. m.	23.82	60	62	23.74	62	57	72	N. W.	1	.01	....	Hazy	.....	Cumulus	1-4	N. W.	.....	.....	....	....	Fair.
	10 0 a. m.	23.83	61	63	23.75	63	59	78	N. W.	1	.01	....	Hazy	.....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	11 0 a. m.	23.84	63	64	23.76	64	60	78	N. W.	2	.02	....	Hazy	.....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	12 0 m...	23.82	63	64	23.74	64	60	78	S. W.	3	.04	144	Hazy	.....	Cumulus	3-4	S. E.	.....	.....	....	....	Cloudy.
	1 0 p. m.	23.81	62	61	23.73	61	59	88	N. E.	6	.18	....	Light fog	.....	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy.
	2 0 p. m.	23.79	62	62	23.71	62	59	83	N. E.	1	.01	....	Hazy	.....	Cu.-strat	4-4	0	.....	.....	....	....	Cloudy.
	3 0 p. m.	23.79	63	58	23.71	58	57	94	E.	4	.08	....	Light fog	.....	Cu.-strat	4-4	W.	2.30 p. m.	2.55 p. m.	.19	....	Cloudy.
	4 14 p. m.	23.78	60	58	23.70	58	57	94	S.W.	10	.50	....	Hazy	.....	Cu.-strat	4-4	S.W.	.....	.....	....	....	Cloudy.
	5 0 p. m.	23.80	59	58	23.73	58	56	88	S.W.	6	.18	....	Hazy	.....	Cu.-strat	4-4	S.W.	.....	.....	....	....	Cloudy.
	6 0 p. m.	23.79	59	56	23.72	56	55	94	S.W.	10	.50	....	Nimbus...	1-4	Cumulus	3-4	S.W.	5.41 p. m.	.....	.04	....	Light rain.
	7 0 p. m.	23.80	59	57	23.73	57	56	94	S.W.	10	.50	....	Nimbus...	4-4	Hidden .	....	.....	.....	.....	.05	....	Light rain.
	8 0 p. m.	23.81	60	55	23.73	55	53	87	S.W.	10	.50	....	0	0	Cumulus	3-4	S.W.	.....	7.14 p. m.	.01	....	Cloudy.
	9 0 p. m.	23.82	59	54	23.75	54	53	93	S.W.	12	.72	....	0	0	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	10 0 p. m.	23.82	59	55	23.75	55	54	93	S.W.	14	.98	....	Fog	.....	Hidden .	....	.....	.....	.....	....	....	Foggy.
	10 39 p. m.	23.81	59	56	23.74	56	55	93	S.W.	18	1.62	....	0	0	Cumulus	2-4	S.W.	.....	.....	....	....	Fair.
	12 0 p. m.	23.80	59	56	23.73	56	55	93	S.W.	12	.72	....	Fog	.....	0	0	0	.....	.....	....	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.15	75	72	29.020	71	69	90	E.	4	.08	....	Stratus ...	3-4	0	0	0	.....	.....	....	....	Cloudy.
	7 7 a. m.	29.15	75	72	29.020	71	69	90	E.	4	.08	....	Stratus ...	3-4	0	0	0	.....	.....	....	....	Cloudy.
	11 32 a. m.	29.17	84	83	29.022	82	73	63	S.	6	.18	82	0	0	Cu. & cir	2-4	0	.....	.....	....	....	Fair.
	2 0 p. m.	29.13	84	78	28.976	87	72	45	S.W.	8	.32	....	0	0	Cu. & cir	4-4	S.W.	.....	.....	....	....	Cloudy.
	4 7 p. m.	29.12	85	78	28.964	87	76	58	W.	8	.32	....	0	0	Cu. & cir	4-4	W.	.....	.....	....	....	Cloudy.
	9 0 p. m.	29.14	81	77	28.994	76	73	81	E.	3	.04	....	Nimbus...	4-4	Hidden .	....	.....	.....	.....	....	....	Light rain.
	10 32 p. m.	29.14	80	74	28.997	73	69	83	N. E.	6	.18	....	Stratus ...	1-4	0	0	0	9.25 p. m.	10.00 p. m.	.01	....	Clearing.

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logical record for June 23, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	HYGROM. Attached.	HYGROM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
	1 0 a. m.	23.80	59	56	23.73	56	55.5	97	S. W.	12	.72	....	Fog	....	0	0	0	.....	.....			Foggy.
	2 0 a. m.	23.79	59	56	23.72	56	55.5	97	W.	12	.72	....	Fog	....	Hidden	....	....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.78	58	55	23.71	55	54	93	S. W.	12	.72	....	0	0	Cirrus	1-4	0	.....	.....	....	....	Fair.
	4 0 a. m.	23.79	58	54	23.72	54	53.5	97	W.	14	.98	....	Light fog	....	Cir., cum	3-4	W.	.....	.....	....	....	Cloudy.
	5 0 a. m.	23.80	59	54	23.73	54	53	93	N. W.	12	.72	....	0	0	Cir., cum	3-4	W.	.....	.....	....	....	Cloudy.
	6 0 a. m.	23.82	59	56	23.75	56	54	87	N. W.	6	.18	....	0	0	Cirrus	2-4	W.	.....	.....	....	....	Fair.
	7 14 a. m.	23.84	59	58	23.77	58	56	88	N. W.	4	.08	....	Hazy	....	Cirrus	2-4	0	.....	.....	....	....	Fair.
	8 0 a. m.	23.85	60	60	23.78	60	57	82	N. W.	5	.12	....	0	0	Cir., cum	2-4	0	.....	.....	....	....	Fair.
	9 0 a. m.	23.87	61	61	23.79	61	58	82	N. W.	4	.08	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	....	....	Fair.
	10 0 a. m.	23.89	64	61	23.81	61	58	82	N. W.	4	.08	....	0	0	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	11 0 a. m.	23.89	64	60	23.81	60	58	88	N. W.	7	.24	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy; dist't thunder-storm in N. W.
	12 0 m.	23.87	64	60	23.79	60	58	88	N.	2	.02	206	Hazy	....	Cu.-strat	4-4	N. W.	.....	.....	.....	.....	Threatening.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.86	64	63	23.78	63	61	89	N. W.	2	.02	....	Hazy	....	Cumulus	3-4	N. W.	12.04 p. m.	12.21 p. m.	.09	....	Cloudy; thunder-storm in E.
	2 0 p. m.	23.84	65	64	23.76	64	62	89	W.	3	.04	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	3 0 p. m.	23.86	64	60	23.78	60	59	94	E.	6	.18	....	Fog	....	Hidden	....	....	.....	.....	....	....	Threatening.
	4 14 p. m.	23.83	62	61	23.75	61	59	88	S. W.	8	.32	....	Hazy	....	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy; thunder-st'ms in N. W. & N.
	5 0 p. m.	23.85	61	58	23.77	58	55	82	N. W.	4	.08	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	6 6 p. m.	23.85	59	54	23.78	54	54	100	N. W.	8	.32	....	Nimbus	4-4	Hidden	....	.....	5.35 p. m.	.....	.17	....	Heavy rain; thunder-storm.
	7 0 p. m.	23.86	57	54	23.79	54	53	93	N. W.	8	.32	....	Nimbus	1-4	Cumulus	4-4	N. W.	.....	.....	.08	....	Light rain.
	8 0 p. m.	23.87	59	56	23.80	56	51	69	N. W.	4	.08	....	0	0	Cumulus	4-4	N. W.	.....	7.14 p. m.	.01	....	Cloudy.
	9 0 p. m.	23.87	59	56	23.80	56	52	75	N. E.	2	.32	....	Nimbus	1-4	Cumulus	3-4	0	9.00 p. m.	.....	.....	....	L't rain; heat-lig'n'g.
	10 0 p. m.	23.88	61	58	23.80	58	52	64	N. E.	3	.04	....	Nimbus	1-4	Cumulus	3-4	0	.....	.....	.03	....	Light rain.
	10 39 p. m.	23.87	60	57	23.79	57	52	69	N. E.	4	.08	....	Nimbus	1-4	Cumulus	3-4	0	.....	.....	.01	....	Light rain.
	12 0 p. m.	23.87	60	57	23.79	57	52	69	N. E.	1	.01	....	0	0	Cumulus	1-4	0	.....	11.05 p. m.	.02	....	Fair.
	7 0 a. m.	29.21	77	74	29.074	73	69	81	N. E.	3	.04	....	0	0	Cirrus	1-4	0	.....	.....	....	....	Fair.
	7 7 a. m.	29.21	77	74	29.074	73	69	81	N. E.	3	.04	....	0	0	Cirrus	1-4	0	.....	.....	....	....	Fair.
	11 32 a. m.	29.23	83	84	29.079	83	74	64	S.	4	.08	110	0	0	Cumulus	3-4	E.	.....	.....	....	....	Cloudy.
Knoxville, Tenn.	2 0 p. m.	29.18	86	89	29.021	88	74	48	W.	8	.32	....	0	0	Cu. & cir	3-4	S. E.	.....	.....	....	....	Cloudy.
	4 7 p. m.	29.19	86	85	29.031	84	73	56	N. W.	12	.72	....	Stratus	4-4	Hidden	....	....	.....	.....	....	....	Threatening.
	9 0 p. m.	29.22	76	72	29.087	71	69	90	E.	5	.12	....	Stratus	4-4	Hidden	....	....	.....	.....	....	....	Cloudy.
	10 32 p. m.	29.22	76	71	29.087	70	68	90	N. E.	6	.18	....	Stratus	2-4	Hazy	....	....	.....	.....	....	....	Fair.

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Meteorological record for June 24, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, moving from—	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.87	59	54	23.80	54	51	80	N. E.	4	.08	....	0	0	Cir., cum	2-4	0	.....	.....	....	....	Fair.
	2 0 a. m.	23.86	58	54	23.79	54	52	87	W.	12	.72	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	3 0 a. m.	23.84	58	44	23.77	54	53	93	W.	10	.50	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	4 0 a. m.	23.85	57	54	23.78	54	53	93	W.	10	.50	....	Light fog	....	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	5 0 a. m.	23.87	57	54	23.80	54	52	87	W.	12	.72	....	Hazy	....	Cir., cum	2-4	0	.....	.....	....	....	Fair.
	6 0 a. m.	23.87	57	55	23.80	55	55	100	N. W.	14	.98	....	Fog	....	Hidden ..	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23.89	57	56	23.82	56	54	87	N. W.	13	.84	....	Light fog	....	Cirrus ..	3-4	N. W.	.....	.....	....	....	Cloudy.
	8 0 a. m.	23.90	58	57	23.83	57	55	87	N. W.	12	.72	....	Hazy	....	Cir., cum	2-4	N. W.	.....	.....	....	....	Fair.
	9 0 a. m.	23.91	61	60	23.83	60	56	76	N. W.	12	.72	....	Hazy	....	Cumulus	2-4	N.	.....	.....	....	....	Fair.
	10 0 a. m.	23.93	65	62	23.84	62	58	77	N.	12	.72	....	Hazy	....	Cumulus	2-4	N. E.	.....	.....	....	....	Fair.
	11 0 a. m.	23.94	65	65	23.85	65	60	73	N. E.	4	.08	....	Hazy	....	Cumulus	2-4	N. E.	.....	.....	....	....	Fair.
	12 0 m...	23.93	65	64	23.84	64	59	73	N. E.	2	.02	171	Hazy	....	Cumulus	2-4	N. E.	.....	.....	....	....	Fair.
	1 0 p. m.	23.92	66	63	23.83	63	59	78	N. E.	2	.02	....	Hazy	....	Cumulus	3-4	N. E.	.....	.....	....	....	Cloudy.
	2 0 p. m.	23.92	65	62	23.83	62	59	83	N.	2	.02	....	Hazy	....	Cu.-strat	3-4	N. E.	.....	.....	....	....	Cloudy.
	3 0 p. m.	23.90	65	63	23.81	63	59	78	N.	3	.04	....	Hazy	....	Cu.-strat	4-4	N. W.	.....	.....	....	....	Threatening; distant thunder-storms.
	4 14 p. m.	23.89	64	61	23.81	61	59	88	N. W.	2	.02	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	5 0 p. m	23.90	67	61	23.81	61	59	88	N. W.	8	.32	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	6 0 p. m.	23.88	66	63	23.79	63	59	78	N. W.	8	.32	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	7 0 p.m.	23.89	65	61	23.80	61	58	82	N. W.	8	.32	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	8 0 p.m.	23.89	65	58	23.80	58	56	88	N. W.	8	.32	....	Hazy	....	Cumulus	1-4	0	.....	.....	....	....	Fair.
	9 0 p.m.	23.90	63	57	23.82	57	57	100	N.	12	.72	....	Fog	....	Hidden ..	....	.....	.....	.....	....	....	Foggy.
	10 0 p.m.	23.90	64	57	23.82	57	57	100	N. W.	12	.72	....	Fog	....	Hidden ..	....	.....	.....	.....	....	....	Foggy.
	10 39 p. m.	23.90	63	57	23.82	57	57	100	N.	12	.72	....	Fog	....	Hidden ..	....	.....	.....	.....	....	....	Foggy.
	12 0 p. m.	23.90	63	57	23.82	57	57	100	N. W.	8	.32	....	Fog	....	Hidden ..	....	.....	.....	.....	....	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.28	72	69	29.157	68	67	94	E.	3	.04	....	Fog	....	Hidden ..	....	.....	.....	.....	....	....	Foggy.
	7 7 a. m	29.28	72	69	29.157	68	67	94	E.	3	.04	....	Fog	....	Hidden ..	....	.....	.....	.....	....	....	Foggy.
	11 32 a. m.	29.10	80	83	29.155	72	74	67	S. E.	4	.08	130	0	0	Cumulus	1-4	N.	.....	.....	....	....	Fair.
	2 0 p. m.	29.25	83	80	29.099	88	74	48	E.	4	.08	....	0	0	Cumulus	1-4	0	.....	.....	....	....	Fair.
	4 0 p. m.	29.24	86	80	29.081	86	76	55	N. W.	12	.72	....	0	0	Cu. & cir	3-4	0	.....	.....	....	....	Cloudy.
	9 7 p. m.	29.27	80	77	29.127	76	72	81	N. W.	4	.08	....	Stratus ...	1-4	0	0	0	.....	.....	....	....	Fair.
	10 32 p. m.	29.24	80	75	29.097	74	71	85	S. W.	4	.08	....	0	0	0	0	0	.....	.....	....	....	Clear.

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Meteorological record for June 25, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.89	62	57	23.81	57	57	100	N. W.	15	1.12	....	Fog	....	0	0	0	.....	.....	....	....	Foggy.
	2 0 a. m.	23.88	62	57	23.80	57	57	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.88	62	57	23.80	57	57	100	N. W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23.87	61	56	23.79	56	56	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23.87	61	55	23.79	55	55	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	23.87	61	58	23.79	58	53	70	N. E.	7	.24	....	Hazy	....	Cirrus..	1-4	0	.....	.....	....	....	Fair.
	7 14 a. m.	23.88	61	60	23.80	60	55	71	N. E.	6	.18	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	8 0 a. m.	23.90	62	62	23.82	62	56	66	N. E.	7	.24	....	Hazy	....	Cir., cum	1-4	0	.....	.....	....	....	Fair.
	9 0 a. m	23.91	63	63	23.83	63	58	72	N.	5	.12	....	Hazy	....	Cumulus	1-4	N.	.....	.....	....	....	Fair.
	10 00 a. m.	23.93	65	64	23.84	64	59	73	N. E.	4	.08	....	Hazy	....	Cumulus	2-4	N.	.....	.....	....	....	Fair.
	11 00 a. m.	23.93	66	63	23.84	63	58	72	N. E.	5	.12	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	12 0 m	23.92	65	64	23.83	64	59	73	N. W.	4	.08	197	Hazy	....	Cumulus	3-4	N.	.....	.....	....	....	Cloudy.
	1 0 p. m.	23.91	66	65	23.82	65	59	68	N. W.	8	.32	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair; dist. thunder-storm in S. W. at 12.30 p. m.
	2 0 p. m.	23.91	70	70	23.81	70	63	66	N.	8	.32	....	Hazy	....	Cumulus	3-4	N.	.....	.....	....	....	Cloudy.
	3 0 p. m.	23.90	68	62	23.81	62	58	77	N. E.	9	.40	....	Hazy	....	Cumulus	3-4	N. E.	.....	.....	....	....	Cloudy.
	4 14 p. m.	23.89	65	59	23.80	59	56	82	N. E.	8	.32	....	Hazy	....	Cu.-strat.	4-4	N. E.	.....	.....	....	....	Threatening; distant thunder-storm in N.W.
	5 0 p. m.	23.88	63	57	23.80	57	56	94	N. W.	4	.08	....	Nimbus...	2-4	Cumulus	2-4	N. E.	4.20 p. m.	.....	.23	....	Light rain; distant thunder-storm in S.W.
	6 0 p. m.	23.88	62	56	23.80	56	55	93	N. E.	10	.50	....	Fog	....	Hidden	....	.....	.....	5.32 p. m.	.08	....	Foggy.
	7 0 p. m.	23.88	61	56	23.80	56	56	100	E.	14	.98	....	Nimbus...	4-4	Hidden	....	.....	6.40 p. m.	.....	.05	....	Light rain.
	8 0 p. m.	23.88	61	52	23.80	52	52	100	E.	16	1.28	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.11	....	Light rain.
	9 0 p. m.	23.89	59	51	23.82	51	51	100	E.	14	.98	....	Nimbus ..	4-4	Hidden	....	.....	.....	.....	.09	....	Light rain.
	10 0 p. m.	23.89	58	50	23.82	50	50	100	E.	18	1.62	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.08	....	Light rain.
	10 39 p. m.	23.89	56	49	23.82	49	49	100	E.	16	1.28	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.05	....	Light rain.
	12 0 p. m.	23.89	56	48	23.82	48	48	100	E.	12	.72	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.09	....	Light rain.
Knoxville, Tenn.	7 0 a. m.	29.27	78	74	29.132	73	71	90	S.W.	3	.04	....	0	0	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	7 7 a. m.	29.27	78	74	29.132	73	71	90	S.W.	3	.04	....	0	0	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	11 32 a. m.	29.28	82	86	29.130	85	72	50	N.	8	.32	100.	0	0	Cumulus	2-4	E.	.....	.....	....	....	Fair.
	2 0 p. m	29.24	86	90	29.091	89	73	44	E.	8	.32	....	0	0	Cirrus ..	1-4	N. E.	.....	.....	....	....	Fair.
	4 7 p. m.	29.22	88	91	29.056	90	76	49	N. E.	12	.72	....	0	0	Cumulus	1-4	N. E.	.....	.....	....	....	Fair.
	9 0 p. m.	29.24	83	80	29.089	79	71	65	E.	4	.08	....	Stratus ...	1-4	Hazy ...	....	.....	.....	.....	....	....	Fair.
	10 32 p. m.	29.24	80	77	29.097	76	72	81	E.	3	.04	....	Stratus ...	1-4	0	0	0	.....	.....	....	....	Fair.

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Meteorological record for June 26, 1873.

(Hourly observation.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.84	55	48	23.81	48	48	100	E.	14	.98	...	Fog	...	Hidden	...	...	...	12.28 a. m.	.03	...	Foggy.
	2 0 a. m.	23.81	55	49	23.81	48	48	100	E.	9	.40	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	3 0 a. m.	23.87	56	49	23.80	49	49	100	E.	8	.32	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	4 0 a. m.	23.96	57	51	23.79	51	51	100	E.	6	.32	...	Light fog	...	Cirrus	3-4	0	...	...	...	...	Cloudy.
	5 0 a. m.	23.97	57	52	23.80	52	51	93	E.	6	.18	...	Light fog	...	Cumulus	3-4	0	...	...	...	...	Cloudy.
	6 0 a. m.	23.96	57	53	23.81	53	53	100	E.	10	.50	...	Light fog	...	Cumulus	3-4	0	...	...	...	...	Cloudy.
	7 14 a. m.	23.90	58	55	23.83	55	55	100	E.	10	.50	...	Light fog	...	Cumulus	3-4	0	...	...	...	...	Cloudy.
	8 0 a. m.	23.80	58	55	23.83	55	55	100	E.	2	.02	...	Light fog	...	Cumulus	3-4	0	...	...	...	...	Cloudy.
	9 0 a. m.	23.91	58	56	23.84	56	56	100	N. W.	2	.02	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	10 0 a. m.	23.92	60	56	23.84	56	56	100	N. W.	2	.02	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	11 0 a. m.	23.92	62	58	23.84	58	57	94	N. W.	1	.01	185	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	12 0 m.	23.91	61	58	23.82	58	57	94	N. W.	1	.01	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	1 0 p. m.	23.90	62	58	23.82	58	57	94	N.	2	.02	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	2 0 p. m.	23.89	62	58	23.81	58	57	82	N. E.	1	.01	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	3 0 p. m.	23.89	62	58	23.81	58	57	82	N. E.	4	.08	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	4 14 p. m.	23.89	59	54	23.81	54	53	93	E.	10	.50	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	5 0 p. m.	23.87	59	53	23.81	53	53	93	E.	15	1.12	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	6 0 p. m.	23.87	59	53	23.80	53	51	100	E.	14	.98	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	7 0 p. m.	23.86	58	53	23.79	53	51	100	E.	20	2.00	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	8 0 p. m.	23.87	58	53	23.80	53	51	100	E.	20	2.00	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	9 0 p. m.	23.87	58	53	23.82	53	51	100	E.	12	.72	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	10 0 p. m.	23.87	57	51	23.81	51	51	100	E.	12	.72	...	Fog	...	Hidden	...	...	...	9.10 p. m.	...	.06	Light rain.
	10 30 p. m.	23.87	57	51	23.80	51	51	100	S. E.	14	.98	...	Nimbus	4-4	Hidden	...	...	...	...	...	.02	Light rain.
	12 0 m.	23.86	57	50	23.79	50	50	100	S. E.	12	.72	...	Nimbus	4-4	Hidden	...	...	...	...	...	.12	Light rain.
Knoxville, Tenn.	7 0 a. m.	29.32	73	70	29.193	70	63	65	E.	8	.32	...	Stratus	1-4	Cumulus	3-4	N. W.	...	...	...	...	Cloudy.
	7 7 a. m.	29.32	73	71	29.193	70	63	65	E.	8	.32	...	Stratus	4-4	Cumulus	3-4	N. W.	...	...	...	...	Cloudy.
	11 32 a. m.	29.30	80	79	29.174	79	69	61	N. E.	6	.18	194	Stratus	2-4	Cu. & cir	2-4	0	...	...	...	...	Cloudy.
	2 0 p. m.	29.30	81	77	29.170	76	70	77	N. W.	12	.72	...	Stratus	4-4	Hidden	...	...	...	...	...	...	Threatening.
	4 7 p. m.	29.26	82	81	29.139	80	70	54	E.	12	.72	...	Stratus	1-4	Cumulus	3-4	0	...	...	...	...	Cloudy.
	9 0 p. m.	29.30	80	74	29.157	73	69	81	N. W.	12	.72	...	Stratus	3-4	Haze	...	...	...	...	...	...	Cloudy.
	10 32 p. m.	29.29	77	72	29.152	71	68	85	W.	4	.08	...	Stratus	4-4	Hidden	...	...	...	...	...	...	Cloudy.

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(Hourly observations.)

Place of observation.	Time of observation.	Thermometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Comm'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount, Mitchell, N. C.	1 0 a. m.	23.86	56	50	23.79	50	50	100	S. E.	8	.32	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.04	....	Light rain.
	2 0 a. m.	23.85	56	50	23.78	50	50	100	S. E.	8	.32	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.05	....	Light rain.
	3 0 a. m.	23.84	56	50	23.77	50	50	100	S.	8	.32	....	Nimbus...	4-4	Hidden ...	....	.....	.....	.....	.03	....	Light rain.
	4 0 a. m.	23.85	55	50	23.78	50	50	100	S.W.	10	.50	....	Fog	....	Cumulus..	4-4	S.W.	.....	3.25 a. m.	.01	....	Cloudy.
	5 0 a. m.	23.85	54	51	23.79	51	51	100	S.W.	11	.60	....	Fog.....	....	Cumulus..	4-4	0	.....	.....	.....	....	Cloudy.
	6 0 a. m.	23.86	57	51	23.79	51	51	100	S.W.	9	.40	....	Fog.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	23.86	56	52	23.79	52	52	100	S.W.	8	.32	....	Light fog	....	Cumulus..	4-4	S.W.	.....	.....	.....	....	Cloudy.
	8 0 a. m.	23.86	56	54	23.79	54	54	100	W.	7	.24	....	Fog.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.87	57	57	23.80	57	56	94	S.W.	4	.08	....	Fog.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
	10 0 a. m.	23.87	58	58	23.80	58	57	94	S.W.	4	.08	....	Fog.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
	11 0 a. m.	23.86	59	57	23.79	57	56	94	S.W	4	.08	....	Fog.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
	12 0 m.	23.85	57	58	23.78	58	58	100	S.W.	4	.08	214	Fog.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
	1 0 p. m.	23.84	60	58	23.76	58	57	94	S.W.	4	.08	....	Fog.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
	2 0 p. m	23.83	60	57	23.75	57	55	87	S.W.	2	.02	....	F g.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
	3 0 p. m.	23.81	59	59	23.74	59	57	88	S.W.	2	.02	....	Fog.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
	4 14 p. m.	23.80	59	57	23.73	57	55	87	S.W.	2	.02	....	Fog.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
	5 0 p. m.	23.77	57	57	23.70	57	55	87	S.W.	4	.08	....	Fog.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
	6 0 p. m.	23.77	57	55	23.70	55	54	93	S.W.	8	.32	....	Fog.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
	7 0 p. m.	23.77	57	54	23.70	54	53	93	S.W.	3	.04	....	Fog.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
	8 0 p. m	23.76	58	52	23.69	52	52	100	S.W.	14	.98	....	Fog.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
	9 0 p. m	23.76	57	51	23.69	51	51	100	S.W.	14	.98	....	Fog.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
	10 0 p. m.	23.77	57	52	23.70	52	52	100	S.W.	12	.72	....	Fog.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
	10 39 p. m.	23.77	57	52	23.70	52	52	100	W.	12	.72	....	Fog.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
	12 0 p. m.	23.75	57	52	23.68	52	52	100	S.W.	8	.32	....	Fog.....	....	Hidden ...	....	.....	.....	.....	.....	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.30	75	71	29.170	70	67	85	W.	2	.02	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	....	Cloudy.
	7 7 a. m.	29.30	75	71	29.170	70	67	85	W.	2	.02	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	....	Cloudy.
	11 32 a. m.	29.28	77	75	29.143	74	68	72	W.	8	.32	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	....	Cloudy.
	2 0 p. m.	29.22	78	73	29.082	72	69	87	E.	4	.08	119	Nimbus...	4-4	Hidden ...	....	.....	1.15 p. m.	1.30 p. m.	.....	....	Light rain.
	4 7 p. m.	29.18	74	72	29.052	71	69	90	S.	12	.72	....	Nimbus...	4-4	Hidden ...	....	.....	2.00 p. m.	3.30 p. m.	.52	....	Cloudy.
	9 0 p. m.	29.18	76	72	29.047	71	69	90	S.	3	.04	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	....	Cloudy.
	10 32 p. m.	29.13	75	71	29.000	71	69	90	S.	5	.12	...	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	....	Cloudy.

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Meteorological record for June 28, 1873.

(Hourly observation.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure, per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.74	56	52	23.67	52	52	100	S. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	2 0 a. m.	23.72	55	51	23.66	51	51	100	S. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	3 0 a. m.	23.71	55	51	23.65	51	51	100	S. W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	4 0 a. m.	23.70	55	51	23.64	51	51	100	S. W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	5 0 a. m.	23.70	55	51	23.64	51	51	100	S. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	6 0 a. m.	23.70	55	51	23.64	51	51	100	S. W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	7 14 a. m.	23.71	55	51	23.65	51	51	100	S. W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	8 0 a. m.	23.70	55	52	23.64	52	52	100	W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	9 0 a. m.	23.71	56	53	23.64	53	53	100	W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	10 0 a. m.	23.71	56	54	23.64	54	54	100	W.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	11 0 a. m.	23.71	57	55	23.64	55	54	93	W.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	12 0 m ..	23.70	59	57	23.63	57	56	94	W.	4	.08	213	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	1 0 p. m.	23.69	58	59	23.62	59	57	88	W.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	2 0 p. m.	23.68	58	60	23.61	60	58	88	W.	4	.08	....	Hazy	....	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	3 0 p. m.	23.67	59	61	23.60	61	59	88	W.	2	.02	....	Hazy	....	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	4 14 p. m.	23.66	59	58	23.59	58	57	94	W.	3	.04	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	5 0 p. m.	23.65	58	57	23.58	57	56	94	W.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	6 0 p. m.	23.65	58	56	23.58	56	55	94	W.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	7 0 p. m.	23.64	57	55	23.57	55	55	100	S. W.	14	.98	....	Nimbus	4-4	Hidden	....	.....	6 20 p. m.	.....	.09	....	Light rain.
	8 0 p. m.	23.65	57	54	23.58	54	54	100	W.	11	.60	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.05	....	Light rain.
	9 0 p. m.	23.65	56	54	23.59	54	54	100	W.	4	.08	....	Fog	....	Hidden	....	.....	.....	8.17 p. m.	.01	....	Foggy.
	10 0 p. m.	23.66	59	54	23.59	54	54	100	W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 30 p. m.	23.66	59	54	23.59	54	54	100	W.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	12 0 p. m.	23.66	59	54	23.59	54	54	100	N. W.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.09	73	71	28.965	70	67	87	W.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	7 7 a. m.	29.09	73	71	28.965	70	67	87	W.	4	.08	....	Stratus	4-4	Hidden	....	.....	In night.	In night.	.04	....	Cloudy.
	11 32 a. m.	29.09	76	73	28.937	72	69	85	W.	9	.40	111	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	2 0 p. m.	29.05	79	77	28.909	70	71	75	W.	7	.24	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	4 7 p. m.	29.01	81	81	28.864	80	72	73	S. W.	6	.18	....	Stratus	1-4	Cumulus	3-4	0	11 15 a. m.	11.45 a. m.	.01	....	Cloudy.
	9 0 p. m.	29.01	76	72	28.877	71	69	90	S. W.	4	.08	....	Stratus	2-4	Hazy ..	....	.....	.....	.....	.....	....	Cloudy.
	10 22 p. m.	29.01	76	72	28.877	71	69	90	S. W.	3	.04	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Wet bulb.	HYGROM. Dry bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.65	59	54	23.58	54	54	100	W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 a. m.	23.64	58	53	23.57	53	53	100	W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3 0 a. m.	23.63	58	53	23.56	53	53	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 0 a. m.	23.63	58	53	23.56	53	53	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 a. m.	23.63	57	53	23.56	53	53	100	W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 a. m.	23.63	57	54	23.56	54	54	100	W.	7	.24	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	23.63	57	54	23.56	54	54	100	W.	7	.24	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 a. m.	23.64	57	55	23.57	55	55	100	W.	9	.40	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.64	57	56	23.57	56	55	94	W.	7	.24	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 a. m.	23.64	50	57	23.57	57	56	94	W.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	11 0 a. m.	23.65	60	58	23.57	58	56	88	W.	3	.04	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	12 0 a. m.	23.64	58	57	23.57	57	56	94	S. W.	2	.02	158	Nimbus	4-4	Hidden	....	.....	11.10 a. m.	.....	.37	....	Heavy rain.
	1 0 p. m.	23.62	60	60	23.55	60	59	94	S. W.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.04	....	Light rain.
	2 0 p. m.	23.60	58	59	23.53	59	58	94	S. W.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.03	....	Light rain.
	3 0 p. m.	23.59	60	60	23.52	60	59	94	S.	8	.32	....	Fog	....	Hidden	....	.....	.....	2.25 p. m.	.01	....	Foggy.
	4 14 p. m.	23.58	58	58	23.51	58	57	94	S. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 p. m.	23.58	59	58	23.51	58	58	100	S. E.	8	.32	....	Nimbus	4-4	Hidden	....	.....	4.30 p. m.	.....	.05	....	Light rain.
	6 0 p. m.	23.57	59	58	23.50	58	58	100	S. E.	12	.72	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.07	....	Light rain.
	7 0 p. m.	23.57	60	56	23.50	56	56	100	S. E.	8	.32	....	Fog	....	Hidden	....	.....	.....	6.15 p. m.	.02	....	Foggy.
	8 0 p. m.	23.57	62	55	23.49	55	55	100	S. E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 p. m.	23.57	63	54	23.49	54	54	100	S. E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 p. m.	23.58	61	54	23.50	54	54	100	S. E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 39 p. m.	23.58	60	54	23.51	54	54	100	S. E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	12 0 p. m.	23.57	59	54	23.50	54	54	100	S. E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	28.98	75	72	28.850	71	69	90	W.	3	.04	....	Stratus	4-4	Hidden	....	.....	11.40 a. m.	11.50 a. m.	.....	....	Cloudy.
	7 7 a. m.	28.98	75	72	28.850	71	69	90	W.	3	.04	....	Stratus	4-4	Hidden	....	.....	12.10 p. m.	1.30 p. m.	.....	....	Cloudy.
	11 32 a. m.	28.94	80	79	28.797	78	72	75	S.	4	.08	100	Stratus	3-4	0	0	0	.....	.....	.....	....	Threatening.
	2 0 p. m.	28.90	78	76	28.762	75	71	79	0	0	0	...	Stratus	3-4	0	0	0	.....	.....	.....	....	Cloudy.
	4 7 p. m.	28.90	79	79	28.759	78	72	73	S. W.	4	.08	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.27	....	Threatening.
	9 0 p. m.	28.89	75	71	28.760	70	69	92	0	0	0	....	Stratus	4-4	Hidden	....	.....	4.45 p. m.	5.15 p. m.	.....	....	Cloudy.
	10 32 p. m.	28.86	75	71	28.735	70	68	90	S. W.	2	.02	...	Stratus	4-4	Hidden	....	.....	11.30 p. m.	.....	.15	....	Cloudy.

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Meteorological record for June 30, 1873.

(Hourly observation.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23. 54	58	53	23. 47	53	53	100	S. E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23. 54	58	52	23. 47	52	52	100	S. E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23. 52	55	51	23. 46	51	51	100	S. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23. 51	56	51	23. 44	51	51	100	S. E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23. 51	57	52	23. 44	52	52	100	S. E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	23. 51	57	52	23. 44	52	52	100	E.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23. 51	57	52	23. 44	52	52	100	E.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 a. m.	23. 50	57	53	23. 43	53	53	100	E.	19	1.80	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 a. m.	23. 49	57	53	23. 42	53	53	100	E.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 a. m.	23. 49	56	54	23. 42	54	54	100	E.	20	2.80	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	11 0 a. m.	23. 49	56	54	23. 42	54	54	100	E.	12	.72	....	Nimbus	4-4	Hidden	....	.....	10.12 a-m.	.....	.31	....	Heavy rain.
	12 0 m...	23. 49	56	55	23. 42	55	55	100	S. E.	12	.72	266	Nimbus	4-4	Hidden	....	.....	.....	.....	.19	....	Light rain.
	1 0 p. m.	23. 48	56	56	23. 41	56	56	100	S. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	12.25 p.m.	.09	....	Foggy.
	2 0 p. m.	23. 49	58	58	23. 42	58	57	94	W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 p. m.	23. 48	60	55	23. 41	55	55	100	W.	16	1.28	....	Nimbus	4-4	Hidden	....	.....	2.40 p.m.	.....	.12	....	Heavy rain
	4 14 p. m.	23. 46	56	54	23. 39	54	54	100	N. W.	18	1.62	....	Fog	....	Hidden	....	.....	.....	3.45 p.m.	.09	....	Foggy.
	5 0 p. m.	23. 47	56	54	23. 40	54	54	100	N. W.	16	1.28	....	Nimbus	4-4	Hidden	....	.....	4.45 p.m.	.....	.06	....	Heavy rain.
	6 0 p. m.	23. 49	56	53	23. 42	53	53	100	N. W.	18	1.62	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.06	....	Heavy rain.
	7 0 p. m.	23. 51	57	52	23. 44	52	52	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	6.10 p.m.	.03	....	Foggy.
	8 0 p. m.	23. 51	57	51	23. 44	51	51	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 p. m.	23. 54	56	52	23. 47	52	52	100	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 p. m.	23. 56	56	52	23. 49	52	52	100	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 30 p. m.	24. 57	57	52	24. 50	52	52	100	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 p. m.	23. 57	55	51	23. 51	51	51	100	N. W.	19	1.80	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	28. 81	74	70	28. 682	69	68	93	E.	7	.24	....	Nimbus	4-4	Hidden	....	.....	.....	6.15 a.m.	....	....	Light rain.
	7 7 a. m.	28. 81	74	70	28. 682	69	68	93	E.	7	.24	....	Nimbus	4-4	Hidden	....	.....	7.00 a.m.	.....	.90	....	Light rain.
	11 32 a. m.	28. 80	74	74	28. 672	73	71	90	S.	12	.72	115	Stratus	4-4	Hidden	....	.....	.....	2.40 p.m.	....	....	Cloudy.
	2 0 p. m.	28. 81	75	70	28. 680	69	67	90	W.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	....	....	Light rain.
	4 7 p. m.	28. 83	76	73	28. 697	72	70	90	S. E.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	.96	....	Cloudy.
	9 0 p. m.	28. 94	74	67	28. 812	66	63	84	S.	6	.18	....	Stratus	1-4	0	0	0	5.10 p.m.	6.15 p.m.	....	....	Clearing.
	10 32 p. m.	28. 95	73	66	28. 825	65	63	80	W.	6	.18	....	Nimbus	3-4	0	0	0	10.50 p.m.	11.15 p.m.	.04	....	Light rain.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from)—	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.58	54	51	23.52	51	51	100	N. W.	20	2.00	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23.58	55	50	23.52	50	50	100	N. W.	18	1.62	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.59	54	50	23.53	50	50	100	N. W.	20	2.00	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23.60	54	50	23.54	50	50	100	N. W.	20	2.00	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23.62	53	50	23.56	50	50	100	N. W.	18	1.62	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 6 a. m.	23.64	53	50	23.58	50	50	100	N. W.	20	2.00	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23.66	53	50	23.60	50	50	100	N. W.	15	1.12	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 a. m.	23.68	53	51	23.62	51	51	100	N. W.	15	1.12	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 a. m.	23.70	53	51	23.64	51	51	100	N. W.	19	1.80	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 a. m.	23.73	54	53	23.67	53	51	86	N. W.	12	.72	....	Hazy	.....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	11 0 a. m.	23.75	54	55	23.69	55	52	80	N. W.	24	2.88	....	Hazy	.....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	12 0 m...	23.76	54	59	23.69	59	55	76	N. W.	12	.72	414	Hazy	.....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	1 0 p. m.	23.80	61	62	23.72	62	56	66	N. W.	8	.32	....	Hazy	.....	Cir., cum	2-4	N. W.	.....	.....	....	....	Fair.
	2 0 p. m.	23.82	64	62	23.74	62	56	66	N. W.	8	.32	....	Hazy	.....	Cir., cum	2-4	N. W.	.....	.....	....	....	Fair.
	3 0 p. m.	23.83	65	65	23.74	65	59	68	N. W.	4	.08	....	Hazy	.....	Cir., cum	3-4	N. W.	.....	.....	....	....	Cloudy.
	4 14 p. m.	23.83	63	62	23.75	62	57	72	N. W.	8	.32	....	Hazy	.....	Cirrus...	3-4	N. W.	.....	.....	....	....	Cloudy.
	5 0 p. m.	23.84	63	63	23.76	63	58	72	N. W.	2	.02	....	Hazy	.....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	6 0 p. m.	23.84	62	60	23.76	60	58	88	W.	8	.32	....	Hazy	.....	Cirrus...	3-4	N. W.	.....	.....	....	....	Cloudy.
	7 0 p. m.	23.83	60	58	23.75	58	54	76	W.	12	.72	....	Hazy	.....	Cirrus...	2-4	0	.....	.....	....	....	Fair.
	8 0 p. m.	23.83	61	54	23.75	54	53	93	W.	16	1.28	....	Hazy	.....	Cirrus...	2-4	0	.....	.....	....	....	Fair.
	9 0 p. m.	23.85	59	54	23.78	54	52	87	S.W.	18	1.62	....	Hazy	.....	Cirrus...	1-4	0	.....	.....	....	....	Fair.
	10 0 p. m.	23.85	58	53	23.78	53	52	93	S.W.	18	1.62	....	0	0	0	0	0	.....	.....	....	....	Clear.
	10 39 p. m.	23.86	58	54	23.79	54	52	87	S.W.	16	1.28	....	0	0	0	0	0	.....	.....	....	....	Clear.
	12 0 p. m.	23.86	57	53	23.79	53	52	93	S.W.	16	1.28	....	0	0	0	0	0	.....	.....	....	....	Clear.
Knoxville, Tenn.	7 0 a. m.	29.09	71	67	28.970	66	65	94	S.W.	0	0	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 7 a. m.	29.09	71	67	28.970	66	65	94	0	0	0	....	Fog	.....	Hidden	....	.....	.....	.....	.01	....	Foggy.
	11 32 a. m.	29.15	76	79	29.017	78	70	65	W.	8	.32	120	0	0	Cumulus	2-4	S.W.	.....	.....	....	....	Fair.
	2 0 p. m.	29.16	79	83	29.019	82	69	49	S.W.	12	.72	....	0	0	Cumulus	1-4	W.	.....	.....	....	....	Fair.
	4 7 p. m.	29.16	79	86	29.019	85	72	50	S.W.	8	.32	....	0	0	Cumulus	1-4	W.	.....	.....	....	....	Fair.
	9 0 p. m	29.17	78	77	29.032	76	73	86	0	0	0	....	0	0	Cirrus...	1-4	0	.....	.....	....	....	Fair.
	10 32 p. m.	29.19	77	74	29.054	73	70	85	S.	1	.01	....	0	0	0	0	0	.....	.....	....	....	Clear.

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Meteorological record for July 2, 1873.

(Hourly observations.)

Place of observation.	Date of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.85	56	53	23.78	53	52	93	S.W.	20	2.00	....	0	0	0	0	0	.....	.....	....	....	Clear.
	2 0 a. m.	23.84	56	54	23.77	54	53	93	S.W.	17	1.44	....	0	0	0	0	0	.....	.....	....	....	Clear.
	3 0 a. m.	23.84	57	54	23.77	54	53	93	S.W.	18	1.62	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	4 0 a. m.	23.85	57	54	23.78	54	53	93	S.W.	20	2.00	....	0	0	Cirrus .	1-4	0	.....	.....	....	....	Fair.
	5 0 a. m.	23.87	57	54	23.80	54	53	93	S.W.	16	1.28	....	0	0	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	6 0 a. m.	23.88	57	54	23.81	54	53	93	S.W.	16	1.28	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	7 14 a. m.	23.90	58	55	23.83	55	53	87	W.	12	.72	....	0	0	Cumulus	1-4	N. W.	.....	.....	....	....	Fair.
	8 0 a. m.	23.92	58	60	23.85	60	55	71	W.	9	.40	....	0	0	Cumulus	1-4	N. W.	.....	.....	....	....	Fair.
	9 0 a. m.	23.94	60	65	23.86	65	58	88	N. W.	12	.72	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	....	....	Fair.
	10 0 a. m.	23.95	63	68	23.87	68	60	60	W.	4	.08	....	Hazy	....	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	11 0 a. m.	23.96	65	68	23.87	68	61	65	W.	4	.08	....	Hazy	....	Cu.-strat	3-4	W.	.....	.....	....	....	Cloudy.
	12 0 m ..	23.96	67	69	23.87	69	61	61	N. W.	8	.32	281	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	1 0 p. m.	23.97	70	72	23.87	72	62	54	N. W.	4	.08	....	Hazy	....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	2 0 p. m.	23.97	67	73	23.88	73	63	54	S.W.	4	.08	....	Hazy	....	Cumulus	3-4	0	.....	.....	....	....	Cloudy; dist'nt thunder-storm in N. E.
	3 0 p. m.	23.96	67	66	23.87	66	60	68	S.W.	2	.02	....	Hazy	....	Cumulus	3-4	S.W.	.....	.....	....	....	Cloudy; dist'nt thunder-storm in E.
	4 14 p. m		95	67	23.86	66	60	68	W.	8	.32	....	Hazy	....	Cumulus	3-4	S.W.	.....	.....	....	....	Cloudy; dist'nt thunder-storm in N. W.
	5 0 p. m.	23.94	65	62	23.85	62	58	77	S.W.	12	.72	....	Hazy	....	Cumulus	3-4	S.W.	.....	.....	....	....	Fair.
	6 0 p. m.	23.93	64	62	23.85	62	60	88	S.W.	10	.50	....	Hazy	....	Cumulus	3-4	S.W.	.....	.....	....	....	Fair.
	7 0 p. m.	23.93	63	60	23.85	60	58	88	S.W.	12	.72	....	Hazy	....	Cumulus	2-4	S.W.	.....	.....	....	....	Fair.
	8 0 p. m.	23.93	61	58	23.85	58	56	88	S.W.	16	1.28	....	Hazy	....	Cumulus	2-4	S.W.	.....	.....	....	....	Fair.
	9 0 p. m.	23.94	63	57	23.86	57	56	94	S.W.	14	.98	....	Hazy	....	Cumulus	1-4	S.W.	.....	.....	....	....	Fair.
	10 0 p. m.	23.94	64	58	23.86	58	57	93	S.W.	8	.32	....	Hazy	....	Cumulus	1-4	S.W.	.....	.....	....	....	Fair.
	10 30 p. m.	23.94	64	57	23.86	57	56	94	S.W.	8	.32	....	Hazy	....	Cumulus	1-4	S.W.	.....	.....	....	....	Fair.
	12 0 p. m.	23.92	61	56	23.84	56	55	93	S.W.	16	1.28	....	Hazy	....	Cumulus	1-4	S.W.	.....	.....	....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.28	75	74	29.149	73	71	90	0	0	0	....	Hazy	....	0	0	0	.....	.....	....	....	Fair.
	7 7 a. m.	29.28	75	74	29.149	73	71	90	0	0	0	....	Hazy	....	0	0	0	.....	.....	....	....	Fair.
	11 32 a. m.	29.21	82	84	29.160	83	74	64	S.W.	9	.40	128	Hazy	....	Cumulus	3-4	S.W.	.....	.....	....	....	Cloudy.
	12 0 p. m.	29.30	88	87	29.146	76	74	55	S.W.	12	.72	....	Hazy	....	Cumulus	1-4	S.W.	.....	.....	....	....	Fair.
	4 7 p. m.	29.25	85	88	29.094	87	75	55	S.W.	13	.84	....	0	0	Cumulus	2-4	S.W.	.....	.....	....	....	Fair.
	9 0 p. m.	29.28	82	79	29.131	78	72	74	S.W.	4	.08	....	0	0	0	0	0	.....	.....	....	....	Clear.
	10 32 p. m.	29.28	82	77	29.141	76	72	81	S.W.	4	.08	....	0	0	0	0	0	.....	.....	....	....	Clear.

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Meteorological record for July 3, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.91	60	56	23.83	56	55	93	S. W.	16	1.28	....	0	0	Cumulus	1-4	S. W.	.....	.....	.....	.....	Fair.
	2 0 a. m.	23.90	60	57	23.82	57	56	94	N. W.	16	1.28	....	Light fog	....	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	3 0 a. m.	23.90	60	56	23.82	56	55	93	N. W.	16	1.28	....	Light fog	....	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	4 0 a. m.	23.90	60	57	23.82	55	54	93	N. W	16	1.28	....	Light fog	....	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	5 0 a. m.	23.90	59	55	23.83	55	55	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	6 0 a. m.	23.92	60	56	23.84	56	56	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	7 14 a. m.	23.94	60	56	23.86	56	56	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	8 0 a. m.	23.95	60	57	23.87	57	57	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	9 0 a. m.	23.95	62	62	23.87	62	59	83	N. W.	13	.84	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	.....	Fair.
	10 0 a. m.	23.96	62	62	23.88	62	59	83	N. W.	10	.50	....	Hazy	....	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
	11 0 a. m.	23.95	65	67	23.86	67	62	74	N. W.	8	.32	....	Hazy	....	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
	12 0 m.	23.96	66	66	23.87	66	61	73	N. W.	2	.02	271	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	1 0 p. m.	23.94	67	65	23.85	65	61	73	N. W.	2	.02	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	.....	Fair.
	2 0 p. m.	23.93	67	69	23.84	69	64	75	W.	1	.01	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	.....	Fair.
	3 0 p. m.	23.94	69	69	23.84	69	62	65	S. W.	4	.08	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	.....	Fair.
	4 14 p. m.	23.94	73	72	23.84	72	62	54	N. W	4	.08	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	.....	Fair.
	5 0 p. m.	23.93	72	70	23.83	70	62	61	W.	4	.08	....	Hazy	....	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
	6 0 p. m.	23.93	71	69	23.83	69	65	80	N. W.	4	.08	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	.....	Fair.
	7 0 p. m.	23.92	67	62	23.83	62	58	77	W.	4	.08	....	Hazy	....	Cumulus	1-4	W.	.....	.....	.....	.....	Fair.
	8 0 p. m.	23.91	64	59	23.83	59	57	88	N. W.	4	.08	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	.....	Fair.
	9 0 p. m.	23.92	67	59	23.83	59	59	100	W.	7	.24	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	10 0 p. m.	23.94	68	59	23.84	59	58	94	W.	12	.72	....	Light fog	....	0	0	0	.....	.....	.....	.....	Fair.
	10 39 p. m.	23.93	67	58	23.84	58	57	94	W.	4	.08	....	0	0	Cirrus	1-4	0	.....	.....	.....	.....	Fair.
	12 0 p. m.	23.92	65	57	23.83	57	56	94	W.	16	1.28	....	Light fog	....	0	0	0	.....	.....	.....	.....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.33	79	75	29.187	74	71	85	S. W.	4	.08	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	7 7 a. m.	29.33	79	75	29.187	74	71	85	S. W.	4	.08	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	11 32 a. m.	29.29	84	86	29.135	85	74	60	S. W.	8	.32	149	0	0	Cumulus	1-4	W.	.....	.....	.....	.....	Fair.
	2 0 p. m.	29.25	86	89	29.091	88	75	52	S	12	.72	....	0	0	Cumulus	1-4	S. W.	.....	.....	.....	.....	Fair.
	4 7 p. m.	29.25	88	92	29.085	91	76	47	S. W.	12	.72	....	0	0	Cumulus	1-4	W.	.....	.....	.....	.....	Fair.
	9 0 p. m.	29.24	84	82	29.085	81	75	74	S. W.	5	.12	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	10 32 p. m.	29.24	81	79	29.094	78	74	82	S. W.	4	.08	....	0	0	Hazy	....	.....	.....	.....	.....	.....	Fair.

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Meteorological record for July 4, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.91	65	56	23.82	56	55	93	S. W.	8	.32	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	2 0 a. m.	23.90	64	56	23.82	56	55	93	S. W.	12	.72	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	3 0 a. m.	23.88	63	57	23.80	57	56	94	W.	16	1.28	....	Light fog .	....	0	0	0	.....	.....	.....	.....	Fair.
	4 0 a. m.	23.89	64	58	23.81	58	58	100	N. W.	15	1.12	....	Fog.....	....	Hidden .	...	.....	.....	.....	.....	.....	Foggy.
	5 0 a. m.	23.90	64	58	23.82	58	58	100	N. W.	14	.98	....	Fog.....	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	6 0 a. m.	23.90	60	57	23.82	57	57	100	W.	12	.72	....	Light fog .	....	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	7 14 a. m.	23.91	62	58	23.83	58	58	100	N. W.	13	.84	....	Fog.....	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	8 0 a. m.	23.91	63	59	23.83	59	59	100	N. W.	16	1.28	....	Fog.....	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	9 0 a. m.	23.93	63	59	23.85	59	59	100	N. W.	12	.72	....	Fog.....	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	10 0 a. m.	23.93	65	64	23.84	64	62	89	N. W.	9	.40	....	Hazy	....	Cumulus	1-4	W.	.....	.....	.....	.....	Fair.
	11 0 a. m.	23.93	66	69	23.84	69	62	65	W.	4	.08	....	Hazy	....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	12 0 m...	23.91	65	68	23.82	68	64	79	0	0	0	197	Hazy	....	Cumulus	4-4	S. W.	.....	.....	.....	.....	Cloudy.
	1 0 p. m.	23.90	67	70	23.81	70	64	70	W.	4	.08	....	Hazy	....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	2 0 p. m.	23.92	69	72	23.82	72	63	58	W.	8	.32	....	Hazy	....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	3 0 p. m.	23.91	69	70	23.81	70	62	61	W.	6	.18	....	Hazy	....	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
	4 14 p. m.	23.90	69	70	23.80	70	62	61	W.	6	.18	....	Hazy	....	Cumulus	1-4	W.	.....	.....	.....	.....	Fair.
	5 0 p. m.	23.89	69	67	23.79	67	62	74	W.	8	.32	....	Hazy	....	Cumulus	1-4	W.	.....	.....	.....	.....	Fair.
	6 0 p. m.	23.87	68	65	23.78	65	62	84	N. W.	8	.32	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	.....	Fair.
	7 0 p. m.	23.87	65	63	23.78	63	60	83	N. W.	10	.50	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	.....	Fair.
	8 0 p. m.	23.87	67	62	23.78	62	60	88	N. W.	8	.32	....	Light fog	....	Cumulus	1-4	N. W.	.....	.....	.....	.....	Fair.
	9 0 p. m.	23.87	67	61	23.78	61	61	100	S. W.	12	.72	....	Fog.....	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	10 0 p. m.	23.87	66	61	23.78	61	60	94	S. W.	18	1.62	....	Light fog	....	Cumulus	2-4	0	.....	.....	.....	.....	Fair.
	10 39 p. m.	23.86	65	60	23.77	60	59	94	S. W.	16	1.28	....	Light fog	....	Cumulus	2-4	0	.....	.....	.....	.....	Fair.
	12 0 p. m.	23.86	65	60	23.77	60	59	94	W.	8	.32	....	Fog.....	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.28	81	77	29.134	76	72	81	S. W.	3	.04	....	Hazy	....	Cirrus ..	2-4	0	.....	.....	.....	.....	Fair.
	7 7 a. m.	29.28	81	77	29.134	76	72	81	S. W.	3	.04	....	Hazy	....	Cirrus ..	2-4	0	.....	.....	.....	.....	Fair.
	11 32 a. m.	29.26	86	87	29.103	66	76	61	S.	8	.32	115	0	0	Cir.& cu.	3-4	S. W.	.....	.....	.....	.....	Cloudy.
	2 0 p. m.	29.21	88	90	29.046	69	75	49	S. W.	12	.72	....	0	0	Cir.& cu.	2-4	W.	.....	.....	.....	.....	Fair.
	4 7 p. m.	29.20	88	91	29.036	00	76	49	S. W.	12	.72	....	0	0	Cir.& cu.	2-4	S. W.	.....	.....	.....	.....	Fair.
	9 0 p. m.	29.19	74	82	29.036	81	75	74	S. W.	8	.32	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	10 32 p. m.	29.17	82	70	29.028	78	70	65	S. W.	6	.18	....	0	0	0	0	0	.....	.....	.....	.....	Clear.

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Meteorological record for July 5, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HUMIDITY. Dry bulb.	HUMIDITY. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N.C.	1 0 a. m.	23.84	64	58	23.76	58	58	100	N. W.	18	1.62	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	2 0 a. m.	23.84	60	55	23.76	58	55	100	N. W.	28	3.02	....	Nimbus	4-4	Hidden	....	....	1.35 a. m.	....	.24	....	Heavy rain; heavy thunder-storm from N.
	3 0 a. m.	23.82	59	54	23.75	54	54	100	N. W.	18	1.62	....	Fog	....	Hidden	....	....	....	2.20 a. m.	.06	....	Foggy.
	4 0 a. m.	23.80	58	53	23.73	53	53	93	N. W.	16	1.28	....	Fog	0	Hidden	....	....	....	....	....	....	Foggy.
	5 0 a. m.	23.79	58	53	23.72	53	52	93	N. W.	16	1.28	....	Fog	0	Cumulus	2-4	N. W.	....	....	....	....	Fair.
	6 0 a. m.	23.78	58	55	23.71	55	54	93	N. W.	22	2.42	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	7 14 a. m.	23.79	58	56	23.72	56	56	100	N. W.	18	1.62	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	8 0 a. m.	23.80	58	56	23.73	56	56	100	N. W.	14	.98	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	9 0 a. m.	23.81	60	57	23.73	57	57	100	N. W.	12	.72	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	10 0 a. m.	23.81	61	59	23.73	59	59	100	N. W.	8	.32	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	11 0 a. m.	23.82	64	59	23.74	59	59	100	N. W.	7	.24	....	Light fog	....	Cumulus	2-4	N. W.	....	....	....	....	Cloudy.
	12 0 m	23.81	65	65	23.72	65	59	63	S. E.	2	.02	.290	0	0	Cumulus	3-4	N. W.	....	....	....	....	Cloudy.
	1 0 p. m.	23.79	65	64	23.70	64	63	94	E.	4	.08	....	Hazy	....	Cumulus	4-4	W.	....	....	....	....	Cloudy.
	2 0 p. m.	23.77	64	63	23.69	63	61	80	S. W.	2	.02	....	Hazy	....	Cum.-str	4-4	W.	....	....	....	....	Threatening.
	3 0 p. m	23.76	59	55	23.69	55	55	100	W.	12	.72	....	Nimbus	4-4	Hidden	....	....	2.43 p. m.	....	.09	....	Heavy rain; thunder-storm from N.
	4 14 p. m.	23.74	58	54	23.67	54	52	100	W.	20	2.00	....	Nimbus	4-4	Hidden	....	....	....	....	.34	....	Heavy rain.
	5 0 p. m.	23.74	58	51	23.67	51	51	100	N. W.	8	.32	....	Nimbus	4-4	Hidden	....	....	....	....	.14	....	Light rain.
	6 0 p. m.	23.74	58	52	23.67	52	52	100	N. E.	10	.50	....	Nimbus	4-4	Hidden	....	....	....	....	.06	....	Light rain.
	7 0 p. m.	23.74	56	51	23.67	51	51	100	N. E.	16	1.28	....	Nimbus	4-4	Hidden	....	....	....	....	.04	....	Light rain.
	8 0 p. m.	23.73	55	50	23.67	50	50	100	N. E.	22	2.42	....	Fog	....	Hidden	....	....	....	7.45 p. m.	....	....	Foggy.
	9 0 p. m.	23.73	55	50	23.67	50	50	100	N. E.	20	2.00	....	Nimbus	4-4	Hidden	....	....	....	....	.03	....	Light rain.
	10 0 p. m.	23.74	55	50	23.68	50	50	100	N.	8	.32	....	Fog	....	Hidden	....	....	9.00 p. m.	....	....	....	Foggy.
	10 30 p. m.	23.75	55	50	23.69	50	50	100	N.	16	1.28	....	Fog	....	Hidden	....	....	....	9.50 p. m.	.03	....	Foggy.
	12 0 m	23.75	55	51	23.69	51	50	100	N. W.	18	1.62	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	7 0 a. m.	23.19	76	74	23.062	73	69	81	E.	3	.04	....	Cirrus	1-4	Cirrus	1-4	0	....	....	....	....	Clear.
	7 7 a. m.	23.19	77	74	23.050	73	69	81	E.	3	.04	....	Cirrus	1-4	Cirrus	1-4	0	....	....	....	....	Clear.
	11 32 a. m.	23.14	86	87	23.041	86	75	58	W.	5	.12	.152	0	0	Cumulus	4-4	W.	....	....	....	....	Cloudy.
Knoxville, Tenn.	2 0 p. m.	23.15	77	68	23.014	67	66	94	E.	8	.32	....	Nimbus	4-4	Hidden	....	....	....	....	....	....	Light rain.
	4 7 p. m.	23.14	76	68	23.007	67	65	94	S. E.	3	.04	....	Stratus	4-4	Hidden	....	....	1.00 p. m.	3.45 p. m.	1.53	....	Cloudy.
	9 0 p. m.	23.15	73	68	23.025	67	65	87	N. E.	6	.18	....	0	0	Cirrus	1-4	0	....	....	....	....	Clearing.
	10 32 p. m.	23.16	74	67	23.032	66	65	92	E.	2	.02	....	0	0	0	0	0	....	....	....	....	Clear.

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Meteorological record for July 6, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM.		HYGROM.		Relative humidity.	WIND.			LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
			Attached.	Exposed.	Dry bulb.	Wet bulb.		Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction. (moving from—)	Commen'd.	Ended.			
Summit of Mount Mitchell, N. C.	1 0 a. m.	23. 73	55	51	51	51	100	N. W.	20	2 00		Fog		Hidden						Foggy.
	2 0 a. m.	23. 72	55	51	51	51	100	N. W.	24	2 88		Fog		Hidden						Foggy.
	3 0 a. m.	23. 71	55	52	52	52	100	N. W.	20	2 00		Fog		Hidden						Foggy.
	4 0 a. m.	23. 72	55	52	53	53	100	N. W.	20	2 00		Fog		Hidden						Foggy.
	5 0 a. m.	23. 73	55	53	53	53	100	N. W.	16	1 28		Fog		Hidden						Foggy.
	6 0 a. m.	23. 74	55	53	53	53	100	N. W.	16	1 28		Fog		Hidden						Foggy.
	7 14 a. m.	23. 69	55	51	51	51	100	N. W.	16	1 28		Fog		Hidden						Foggy.
	8 0 a. m.	23. 76	55	52	52	52	100	N. W.	16	1 28		Fog		Hidden						Foggy.
	9 0 a. m.	23. 77	58	55	54	54	93	N. W.	16	1 28		Light fog		Cumulus.	1-4	N. W.				Foggy.
	10 0 a. m.	23. 78	57	57	57	54	81	N. W.	17	1 44		Hazy		Cumulus.	1-4	0				Fair.
	11 0 a. m.	23. 79	58	59	58	52	64	N. W.	12	72		Hazy		Cumulus.	1-4	N. W.				Fair.
	12 0 m	23. 78	60	59	59	53	65	N. W.	10	50	361	Hazy		Cumulus.	1-4	N. W.				Fair.
	1 0 p. m.	23. 70	61	61	61	53	55	N. W.	8	32		Hazy		Cumulus.	1-4	N. W.				Fair.
	2 0 p. m.	23. 78	61	61	61	53	55	N. W.	12	72		Hazy		Cumulus.	1-4	N. W.				Fair.
	3 0 p. m.	23. 78	62	61	61	53	55	N. W.	8	32		Hazy		Cumulus.	1-4	N. W.				Fair.
	4 14 p. m.	23. 77	63	60	60	52	55	N.	8	32		Hazy		Cirrus	1-4	0				Fair.
	5 0 p. m.	23. 77	63	59	59	51	54	N.	10	50		Hazy		Cirrus	1-4	0				Fair.
	6 0 p. m.	23. 76	61	56	56	50	63	N. E.	16	1 28		Hazy		Cirrus	1-4	0				Fair.
	7 0 p. m.	23. 75	56	54	54	50	74	N.	28	3 92		Hazy		Cirrus	1-4	0				Fair.
	8 0 p. m.	23. 77	56	56	56	48	51	N. E.	16	1 28		Hazy		Cirrus	1-4	0				Fair.
	9 0 p. m.	23. 77	57	57	57	46	36	N. E.	16	1 28		Hazy		Cirrus	1-8	0				Fair.
	10 0 p. m.	23. 76	56	56	56	46	40	N. E.	10	50		Hazy		Cirrus	1-4	0				Fair.
	10 39 p. m.	23. 76	56	56	56	46	37	N. E.	4	08		Hazy		Cirrus	1-4	0				Fair.
	12 0 p. m.	23. 75	56	56	56	46	40	N. E.	2	02			0	Cumulus	1-4	0				Fair.
Knoxville, Tenn.	7 0 p. m.	29. 17	70	67	66	65	94	N. E.	6	18		Stratus	4-4	Hidden						Cloudy.
	7 7 p. m.	29. 17	70	67	66	65	94	N. E.	6	18		Stratus	4-4	Hidden			In night.	In night.	.01	Cloudy.
	11 38 p. m.	29. 14	78	60	79	73	73	E.	13	72	130	Stratus	1-4	Cu. & cir	2-4	N. W.				Cloudy.
	2 0 p. m.	29. 16	80	83	80	73	49	N.	19	79			0	Cirrus	1-4	N.				Fair.
	4 7 p. m.	29. 13	84	84	83	69	43	N.	13	29			0	Cirrus	1-4	0				Clear.
	9 0 p. m.	29. 13	77	74	73	67	73	N.	4	08			0		0	0				Fair.
	10 23 p. m.	29. 13	79	71	70	66	80	N.	6	18			0	Cirrus	1-4	0				Fair.

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Meteorological record for July 7, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.74	56	56	23.67	56	46	40	N. E.	4	.08	....	0	0	Cumulus	2-4	0	.....	.....	....	....	Fair.
	2 0 a. m.	23.73	55	55	23.67	55	46	45	N. E.	4	.08	....	0	0	Cumulus	3-4	0	.....	.....	...	....	Cloudy.
	3 0 a. m.	23.73	55	55	23.67	55	47	50	N. E.	2	.02	....	Hazy	.....	Cumulus	2-4	0	.....	.....	....	....	Fair.
	4 0 a. m.	23.73	55	56	23.67	56	48	51	N. W.	2	.02	....	Hazy	.....	Cumulus	1-4	0	.....	.....	....	....	Fair.
	5 0 a. m.	23.74	55	57	23.68	57	48	47	N. W.	3	.04	....	Hazy	.....	Cumulus	1-4	0	.....	.....	....	....	Fair.
	6 0 a. m.	23.75	56	57	23.68	57	49	52	N. W.	2	.02	....	Hazy	.....	Cumulus	1-4	0	.....	.....	....	....	Fair.
	7 14 a. m.	23.76	59	58	23.69	59	49	48	N. W.	6	.18	....	Hazy	.....	Cirrus	1-4	0	.....	.....	....	....	Fair.
	8 0 a. m.	23.76	58	60	23.69	60	52	55	N. W.	2	.02	....	Hazy	.....	Cirrus	1-4	N. W.	.....	.....	....	....	Fair.
	9 0 a. m.	23.77	60	60	23.69	60	51	49	N. W.	4	.08	....	Hazy	.....	Cumulus	2-4	N.	.....	.....	....	....	Fair.
	10 0 a. m.	23.78	62	60	23.70	66	56	49	N. W.	2	.02	....	Hazy	.....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	11 0 a. m.	23.78	64	68	23.70	68	57	47	N. W.	4	.08	....	Hazy	.....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	12 0 m.	23.78	64	66	23.70	66	56	49	N. W.	4	.08	188	Hazy	.....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	1 0 p. m.	23.78	64	64	23.70	64	55	53	N. W.	6	.18	....	Hazy	.....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	2 0 p. m.	23.77	64	63	23.69	63	56	62	N. W.	6	.18	....	Hazy	.....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	3 0 p. m.	23.77	66	66	23.68	66	57	54	N. W.	6	.18	....	Hazy	.....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	4 14 p. m.	23.75	67	65	23.66	65	58	63	N. W.	6	.18	....	Hazy	.....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	5 0 p. m.	23.75	68	64	23.66	64	57	62	N. W.	8	.32	....	Hazy	.....	Cumulus	1-4	N. W.	.....	.....	....	....	Fair.
	6 0 p. m.	23.74	64	58	23.66	58	54	76	N. W.	8	.32	....	Hazy	.....	Cumulus	1-4	N. W.	.....	.....	....	....	Fair.
	7 0 p. m.	23.73	65	56	23.64	56	55	94	S. W.	8	.32	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 p. m.	23.73	64	54	23.65	54	54	100	S. W.	12	.72	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 p. m.	23.73	62	54	23.65	54	54	100	S. W.	18	1.62	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 p. m.	23.73	60	54	23.66	54	53	93	S. W.	20	2.00	....	Light fog	.....	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy.
	10 39 p. m.	23.73	59	54	23.66	54	54	100	S. W.	16	1.28	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 p. m.	23.72	59	54	23.65	54	54	100	S. W.	12	.72	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.13	71	70	29.010	69	64	75	N.	9	.40	....	0	0	0	0	0	.....	.....	....	....	Clear.
	7 7 a. m.	29.13	71	70	29.010	69	64	75	N.	9	.40	....	0	0	0	0	0	.....	.....	....	....	Clear.
	11 32 a. m.	29.14	79	81	28.999	80	71	61	N. E.	3	.04	150	0	0	0	0	0	.....	.....	....	....	Clear.
	2 0 p. m.	29.10	81	84	28.954	83	69	46	N.	4	.08	....	0	0	Cir. & cu.	3-4	N. W.	.....	.....	....	....	Fair.
	4 7 p. m.	29.09	80	85	28.947	84	72	53	S.	3	.04	....	0	0	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	9 0 p. m.	29.06	78	75	28.922	74	71	85	S.	2	.02	....	0	0	Cirrus	1-4	0	.....	.....	....	....	Fair.
	10 32 p. m.	29.06	78	73	28.922	72	70	90	0	0	0	....	0	0	Hazy	....	.....	.....	.....	....	....	Fair.

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Meteorological record for July 8, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23. 70	58	54	23. 63	54	53	93	S.W.	22	2. 42	...	Light fog	.....	Cumulus	4-4	S.W.	.....	.....	.....	.....	Cloudy.
	2 0 a. m.	23. 68	58	55	23. 61	55	55	100	S.W.	20	2. 00	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	3 0 a. m.	23 67	58	54	23. 60	54	54	100	S.W.	24	2. 88	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	4 0 a. m.	23. 67	58	54	23. 60	54	54	100	S.W.	25	3. 12	...	Fog	.....	Cumulus	2-4	0	.....	.....	.....	.....	Cloudy.
	5 0 a. m.	23. 67	59	54	23. 60	54	54	100	S.W.	16	1. 28	...	Light fog	.....	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	6 0 a. m.	23. 65	57	53. 5	23. 58	53. 5	53	97	S.W.	28	3. 92	...	Nimbus	2-4	Cumulus	2-4	S.W.	5. 50 a. m.	.....	.02	.....	Light rain.
	7 14 a. m.	23. 65	57	53	23. 58	53	53	100	S.W.	12	. 72	...	Fog	.....	Hidden	.....	.....	.....	6.10. a. m.	.01	.....	Foggy.
	8 0 a. m.	23. 66	58	53	23. 59	53	52. 5	96	S.W.	16	1. 28	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	9 0 a. m.	23. 66	57	53	23. 59	53	52	93	S.W.	16	1. 28	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	10 0 a. m.	23. 62	53	52	23. 57	52	51	93	S.W.	20	2. 00	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	11 0 a. m.	23. 64	55	52	23. 58	52	51	93	S.W.	20	2. 00	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	12 0 m.	23. 64	57	56	23. 57	56	53	81	N.W.	16	1. 28	349	Hazy	.....	Cumulus	4-4	N.W.	.....	.....	.....	.....	Cloudy.
	1 0 p. m.	23. 65	60	54	23. 59	54	53	93	N.W.	8	. 32	...	Hazy	.....	Cumulus	4-4	N.W.	.....	.....	.....	.....	Cloudy.
	2 0 p. m.	23. 65	59	53	23. 59	53	52	93	N.W.	16	1. 28	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	3 0 p. m.	23. 62	58	54	23. 55	54	53	93	N.W.	16	1. 28	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	4 14 p. m.	23. 60	57	52	23. 53	52	52	100	N.W.	20	2. 00	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	5 0 p. m.	23. 58	56	52	23. 51	52	52	100	N.W.	24	2. 88	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	6 0 p. m.	23. 62	60	52	23. 55	52	52	100	N.W.	28	3. 92	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	7 0 p. m.	23. 69	63	51	23. 61	51	51	100	N.W.	12	. 72	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	8 0 p. m.	23. 69	63	51	23. 61	51	51	100	N.W.	18	1. 62	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	9 0 p. m.	23. 69	62	51	23. 61	51	51	100	N.W.	12	. 72	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	10 0 p. m.	23. 70	63	50	23. 62	50	50	100	N.W.	12	. 72	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	10 30 p. m.	23. 70	62	50	23. 62	50	50	100	N.W.	12	. 72	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	12 0 p. m	23. 71	60	50	23. 64	50	50	100	N.W.	12	. 72	...	Light fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29. 06	73	69	28. 935	68	65	84	S W.	8	. 32	...	Stratus	4-4	Hidden	.....	.....	.....	.....	.....	.....	Cloudy.
	7 7 a. m.	29. 06	73	69	28. 935	68	65	84	S.W.	9	. 32	...	Stratus	4-4	Hidden	.....	.....	In night.	5. 00 a. m.	.07	.....	Cloudy.
	11 32 a. m.	29. 08	80	77	28. 937	76	69	69	S.W.	4	. 08	141	0	0	Cumulus	3-4	W.	.....	.....	.....	.....	Clearing.
	2 0 p. m.	29. 05	79	77	28. 909	76	68	67	N.W.	11	. 60	...	Stratus	4-4	Hidden	.....	.....	.....	.....	.....	.....	Cloudy.
	4 7 p. m.	29. 04	76	76	28. 907	75	67	74	N.	12	. 72	...	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	9 0 p. m.	29. 08	77	72	28. 944	71	66	75	N.	8	. 32	...	0	0	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	10 32 p. m.	29. 09	77	71	28. 954	70	66	79	N.	8	. 32	...	0	0	0	0	0	.....	.....	.....	.....	Clear.

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Meteorological record for July 9, 1873.

(Hourly observations.)

Place of observation.		Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1	0 a. m.	23.70	58	51	23.63	51	50	93	N. W.	16	1.28	....	Fog	....	Cir., cu	3-4	0	.....	.....	.....	.....	Cloudy.
	2	0 a. m.	23.69	56	50	23.62	50	49	93	N. E.	12	.72	....	0	0	Cir., cu	2-4	0	.....	.....	.....	.....	Fair.
	3	0 a. m.	23.69	56	50	23.61	50	48	86	N. E.	12	.72	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	4	0 a. m.	23.68	59	49	23.61	49	47	85	N. E.	12	.72	....	Light fog	....	Cumulus	2-4	0	.....	.....	.....	.....	Fair.
	5	0 a. m.	23.69	58	53	23.62	53	48	67	N. E.	8	.32	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	6	0 a. m.	23.70	60	57	23.63	57	49	92	N. E.	8	.32	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	7	14 a. m.	23.71	58	56	23.64	56	49	57	N. E.	4	.08	....	Hazy	....	Cir., cu	2-4	N. W.	.....	.....	.....	.....	Fair.
	8	0 a. m.	23.72	58	56	23.65	56	51	69	N. E.	5	.12	....	Hazy	....	Cumulus	1-4	N. E.	.....	.....	.....	.....	Fair.
	9	0 a. m.	23.74	57	55	23.67	55	53	89	S. E.	1	.00	....	Hazy	....	Cumulus	3-4	S. E.	.....	.....	.....	.....	Cloudy.
	10	0 a. m.	23.75	58	56	23.68	56	53	81	0	0	0	....	Hazy	....	Cumulus	3-4	S. E.	.....	.....	.....	.....	Cloudy.
	11	0 a. m.	23.75	60	57	23.67	57	54	81	N. W.	1	.01	....	Stratus	2-4	Cumulus	1-4	S. E.	.....	.....	.....	.....	Cloudy.
	12	0 m...	23.75	62	61	23.67	61	56	71	N. W.	1	.01	266	Hazy	....	Cumulus	4-4	N. W.	.....	.....	.....	.....	Cloudy.
	1	0 p. m	23.75	64	60	23.67	60	55	78	N. W.	4	.08	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	.....	.....	Cloudy.
	2	0 p. m.	23.76	66	61	23.67	61	57	77	N. W.	2	.02	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	.....	.....	Cloudy.
	3	0 p. m.	23.76	67	63	23.67	63	57	72	N. E.	1	.01	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	4	14 p. m.	23.76	67	64	23.67	64	58	67	N. E.	2	.02	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	5	0 p. m.	23.76	64	56	23.68	56	53	81	N. E.	1	.01	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	.....	.....	Cloudy.
	6	0 p. m.	23.76	63	55	23.68	55	53	89	N. E.	5	.12	....	Stratus	1-4	Cumulus	2-4	0	.....	.....	.....	.....	Cloudy.
	7	0 p. m.	23.75	64	52	23.67	52	51	93	N.	2	.02	....	Hazy	....	Cirrus ..	2-4	0	.....	.....	.....	.....	Fair.
	8	0 p. m.	23.76	66	52	23.67	52	52	100	N. E.	6	.18	....	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	9	0 p. m.	23.77	66	52	23.68	52	52	100	N. E.	8	.32	....	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	10	0 p. m.	23.76	65	52	23.67	52	52	100	E.	8	.32	....	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	10	39 p. m	23.76	65	53	23.67	53	53	100	E.	2	.02	....	Nimbus	4-4	Hidden	.....	.....	10.25 p. m.	10.45 p. m.	.02	....	Light rain.
	12	0 p. m.	23.75	64	52	23.67	52	52	100	E.	4	.08	....	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
Knoxville, Tenn.	7	0 a. m.	29.13	75	70	29.000	69	66	84	N. E.	8	.32	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	7	7 a. m.	29.13	75	70	29.000	69	66	84	N. E.	8	.32	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	11	32 a. m.	29.14	77	78	29.004	77	68	60	E.	8	.32	169	0	0	Cumulus	2-4	E.	.....	.....	.....	.....	Fair.
	2	0 p. m.	29.10	80	84	28.957	83	70	51	E.	4	.08	....	0	0	Cumulus	1-4	N. W.	.....	.....	.....	.....	Fair.
	4	7 p. m.	29.10	81	84	28.954	83	67	39	N.	8	.32	....	0	0	Cumulus	2-4	N. E.	.....	.....	.....	.....	Fair.
	9	0 p. m.	29.11	77	74	28.974	73	65	65	N.	3	.04	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	10	32 p. m.	29.11	76	72	28.977	71	64	65	N.	4	.08	....	0	0	0	0	0	.....	.....	.....	.....	Clear.

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Meteorological record for July 10, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.74	63	52	23.66	52	52	100	E.	4	.09		Dense fog		Hidden					.05		Light rain.
	2 0 a. m.	23.72	61	51	23.64	51	51	100	S.E.	4	.09		Fog		Hidden				1.55 a. m.	.13		Foggy.
	3 0 a. m.	23.70	59	51	23.63	51	51	100	S.W.	12	.72		0		Cumulus	3-4	W.					Cloudy.
	4 0 a. m.	23.70	59	50	23.63	50	49	93	S.W.	8	.32				Cumulus	2-4	W.					Fair.
	5 0 a. m.	23.71	57	51	23.64	51	51	100	S.W.	12	.72		Fog		Hidden							Foggy.
	6 0 a. m.	23.72	60	53	23.64	53	53	100	W.	12	.72		Fog		Hidden							Foggy.
	7 14 a. m.	23.74	62	54	23.66	54	53	93	W.	6	.18		Fog		Hidden							Foggy.
	8 0 a. m.	23.74	58	56	23.67	56	55	94	W.	6	.18		Fog		Hidden							Foggy.
	9 0 a. m.	23.75	60	57	23.67	57	56	94	W.	7	.24		Fog		Hidden							Foggy.
	10 0 a. m.	23.76	60	57	23.68	57	56	94	N.W.	8	.32		Light fog		Cumulus	2-4	N. W.					Cloudy.
	11 0 a. m.	23.75	61	57	23.67	57	56	94	W.	8	.32		Fog		Cumulus	3-4	N. W.					Foggy.
	12 0 m.	23.73	59	56	23.66	56	54	87	S.W.	8	.32	137	Nimbus	4-4	Hidden				11.45 a. m.	.20		Heavy rain.
	1 0 p. m.	23.74	62	60	23.66	60	58	88	S.W.	6	.18		Fog		Cumulus	2-4	W.			.02		Cloudy.
	2 0 p. m.	23.74	64	61	23.66	61	58	82	W.	5	.12		Light fog		Cumulus	3-4	W.		12.10 p. m.			Cloudy.
	3 0 p. m.	23.73	65	62	23.65	62	58	80	W.	6	.18		Nimbus	4-4	Hidden							Cloudy.
	4 14 p. m.	23.72	64	59	23.64	59	57	88	N.W.	4	.09		Light fog		Cumulus	3-4	N. W.		3.50 p. m.	.09		Light rain.
	5 0 p. m.	23.72	60	58	23.64	57	57	94	S.W.	4	.09		Fog		Hidden					.01		Cloudy.
	6 0 p. m.	23.72	60	57	23.64	56	56	94	S.	4	.09		Hazy		Cumulus	3-4						Foggy.
	7 0 p. m.	23.73	63	58	23.65	53	53	100	S.	6	.18		Fog		Cumulus	2-4	0					Cloudy.
	8 0 p. m.	23.73	65	58	23.65	53	53	100	S.	4	.06		Light fog		Cumulus	3-4	0					Cloudy.
	9 0 p. m.	23.74	65	58	23.65	52	52	100	S.	6	.18		0		Cumulus	2-4	0					Cloudy.
	10 0 p. m.	23.73	63	58	23.65	51	50	93	S.E.	7	.24		Light fog		Cumulus	2-4	0					Fair.
	39 p. m.	23.73	62	51	23.65	51	50	96.5	W.	4	.08		0		Cirrus	1-4	0					Fair.
	12 0 p. m.	23.70	57	50	23.64	50	49	93	W.	20	2.00		0		Cirrus	1-4	0					Fair.
	7 0 a. m.	23.10	72	67	23.077	66	63	84	N.	3	.04		0		Cumulus	2-4	W.					Fair.
	7 7 a. m.	23.10	72	67	23.077	65	63	84	N.	3	.04		0		Cumulus	2-4	W.					Fair.
	11 32 a. m.	20.12	70	61	23.079	60	59	94	N.	4	.08	95	0		Cumulus	3-4	W.					Cloudy.
Knoxville, Tenn.	9 0 p. m.	29.07	82	68	29.922	81	68	47	N.	6	.18		0		Cumulus	3-4	W.					Fair.
	4 7 p. m.	29.03	83	74	29.902	83	71	53	N.E.	4	.06		0		Cumulus	3-4	W.					Fair.
	11 0 p. m.	29.04	77	73	29.937	74	65	61	N.	4	.06		0									Clear.
	10 32 p. m.	29.09	77	71	29.954	70	63	75	N.	3	.04		0									Clear.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m	23.69	57	51	23.62	51	50	93	W.	20	2.00	....	Light fog	....	Cirrus..	1-4	0	.....	.....	.....	.....	Fair.
	2 0 a. m.	23.68	56	51	23.62	51	51	100	W.	16	1.28	....	Light fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	3 0 a. m.	23.69	55	52	23.62	52	52	100	W.	16	1.28	....	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	4 0 a. m.	23.70	55	52	23.64	52	52	100	W.	17	1.44	....	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	5 0 a. m.	23.71	55	52	23.65	52	52	100	W.	12	.72	....	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	6 0 a. m.	23.72	61	53	23.64	53	53	100	N. W.	12	.72	....	Light fog	....	Cumulus	1-4	N. W.	.....	.....	.....	.....	Fair.
	7 14 a. m.	23.73	62	53	23.65	53	52	93	N. W.	12	.72	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	.....	Fair.
	8 0 a. m.	23.73	62	54	23.65	54	52.5	90	N. W.	16	1.28	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	.....	Fair.
	9 0 a. m.	23.74	59	57	23.67	57	53	75	N. W.	8	.32	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	.....	Fair.
	10 0 a. m.	23.77	62	60	23.69	60	54	65	N. W.	5	.12	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	.....	Fair.
	11 0 a. m.	23.78	63	62	23.70	62	56	66	N. W.	4	.08	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	.....	Fair.
	12 0 m...	23.78	64	59	23.70	59	54	70	N.	4	.08	213	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	.....	Fair.
	1 0 p. m	23.78	64	59	23.70	59	55	76	N. E.	4	.08	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	2 0 p. m.	23.78	65	63	23.69	63	58	72	N.	2	.02	....	Light fog	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	3 0 p. m.	23.78	65	64	23.69	64	59	73	N. W.	3	.04	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	4 14 p. m.	23.77	64	63	23.69	63	58	72	N. W.	2	.02	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	5 0 p. m.	23.78	69	63	23.69	63	58	72	0	0	0	....	Hazy	....	Cumulus	3-4	0	.....	.....	.....	.....	Cloudy.
	6 0 p. m.	23.79	67	58	23.70	58	55	82	N. W.	1	.01	....	Hazy	....	Cumulus	3-4	S. E.	.....	.....	.....	.....	Cloudy.
	7 0 p. m.	23.79	68	56	23.70	56	55	93	N. E.	5	.12	....	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	8 0 p. m.	23.81	69	55	23.72	55	55	100	E.	8	.32	....	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	9 0 p. m.	23.81	67	55	23.72	55	54	94	E.	12	.72	....	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	10 0 p. m.	23.81	66	54	23.72	54	53	93	E.	12	.72	....	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	10 39 p. m.	23.82	67	54	23.73	54	53	93	E.	12	.72	....	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	12 0 p. m	23.81	64	54	23.73	54	53	93	E.	12	.72	....	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.12	73	69	28.995	68	64	79	N. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	7 7 a. m.	29.12	73	69	28.995	68	64	79	N. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	11 32 a. m.	29.15	79	80	29.009	79	68	54	N. W.	8	.32	105	0	0	0	0	0	.....	.....	.....	.....	Clear.
	2 0 p. m.	29.11	81	83	28.964	82	67	41	N.	8	.32	....	0	0	Cumulus	1-4	N. E.	.....	.....	.....	.....	Fair.
	4 7 p. m.	29.11	84	86	28.955	85	68	42	N.	8	.32	....	0	0	Cumulus	1-8	N. E.	.....	.....	.....	.....	Clear.
	9 0 p. m.	29.12	79	75	28.979	74	70	81	0	0	0	....	Stratus ...	1-4	0	0	0	.....	.....	.....	.....	Fair.
	10 32 p. m.	29.14	78	74	29.002	73	71	90	N. E.	2	.02	....	0	0	Cumulus	1-4	S. W.	.....	.....	.....	.....	Fair.

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Metcorological record for July 12, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.80	63	54	23.72	54	53	93	E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 a. m.	23.80	63	53	23.72	53	53	100	E.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3 0 a. m.	23.80	60	53	23.72	53	53	100	E.	12	.72	....	Fog	....	Cumulus	3-4	S. E.	.....	.....	.....	....	Cloudy.
	4 0 a. m.	23.81	59	54	23.71	54	53	93	E.	12	.72	....	Light fog	....	Cumulus	2-4	0	.....	.....	.....	....	Fair.
	5 0 a. m.	23.82	59	55	23.75	55	54	93	E.	18	1.62	....	Light fog	....	Cumulus	2-4	0	.....	.....	.....	....	Fair.
	6 0 a. m.	23.83	59	56	23.76	56	54	87	E.	14	.98	....	Light fog	....	Cumulus	2-4	0	.....	.....	.....	....	Fair.
	7 14 a. m.	23.85	59	57	23.78	57	55	87	E.	8	.32	....	Fog	....	Cumulus	1-4	0	.....	.....	.....	....	Foggy.
	8 0 a. m.	23.86	59	57	23.79	57	57	100	E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.87	61	55	23.79	55	54	93	E.	10	.50	....	Nimbus	4-4	Hidden	....	.....	8.50 a.m.	.....	.02	....	Light rain.
	10 0 a. m.	23.88	63	59	23.80	59	58	94	E.	12	.72	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.04	....	Light rain.
	11 0 a. m.	23.87	64	64	23.79	64	60	78	E.	12	.72	....	Fog	....	Cumulus	3-4	0	.....	10.00 a. m.	.01	....	Cloudy.
	12 0 m...	23.86	67	66	23.79	66	60	69	E.	8	.32	217	Fog	....	Cumulus	3-4	S. E.	.....	.....	.....	....	Cloudy.
	1 0 p. m.	23.85	67	67	23.79	67	60	64	S. E.	4	.08	....	Fog	....	Cumulus	3-4	S. W.	.....	.....	.....	....	Cloudy.
	2 0 p. m.	23.85	66	64	23.79	64	58	67	E.	8	.32	....	Hazy	....	Cumulus	2-4	S. E.	.....	.....	.....	....	Fair.
	3 0 p. m.	23.86	63	64	23.80	64	58	67	S. E.	8	.32	....	Hazy	....	Cumulus	2-4	0	.....	.....	.....	....	Fair.
	4 14 p. m.	23.87	62	58	23.79	58	56	88	S. E.	15	1.12	....	Light fog	....	Cumulus	1-4	0	.....	.....	.....	....	Fair.
	5 0 p. m.	23.87	58	54	23.80	54	53	93	S. E.	13	.84	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 p. m.	23.87	57	54	23.80	54	51	80	E.	12	.72	....	Hazy	....	Cumulus	2-4	S. E.	.....	.....	.....	....	Fair.
	7 0 p. m.	23.87	62	53	23.79	53	53	100	E.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 p. m.	23.89	65	53	23.80	53	53	100	E.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 p. m.	23.91	65	54	23.82	54	54	100	E.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 p. m.	23.91	65	54	23.82	54	54	100	E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 30 p. m.	23.91	65	54	23.82	54	54	100	E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	12 0 p. m.	23.90	64	53	23.82	53	53	100	E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
Knoxville, Tenn .	7 0 a. m.	29.20	75	71	29.075	70	67	84	N. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	7 7 a. m.	29.20	75	71	29.075	70	67	84	N. E.	4	.08	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	11 32 a. m.	29.22	83	84	29.060	83	72	56	E.	4	.08	97	0	0	Cumulus	1-4	W.	.....	.....	.....	....	Fair.
	2 0 p. m.	29.20	82	81	29.052	80	70	58	S. E.	16	1.28	....	Stratus ...	1-4	Cumulus	1-4	0	.....	.....	.....	....	Threatening.
	4 7 p. m.	29.20	82	70	29.052	78	69	61	S. W.	5	.12	....	Stratus ...	2-4	Cumulus	3-4	0	.....	.....	.....	....	Cloudy.
	9 0 p. m.	29.25	79	75	29.109	74	70	81	E.	3	.04	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	10 32 p. m.	29.25	79	73	29.109	72	68	83	S. E.	3	.04	....	0	0	Cumulus	1-4	0	.....	.....	.....	....	Fair.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.88	63	52	23.81	52	52	100	S. E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 a. m.	23.88	62	52	23.80	52	52	100	S. E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3 0 a. m.	23.88	60	51	23.80	51	51	100	S. E.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 0 a. m.	23.89	63	50	23.81	50	50	100	S. E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 a. m.	23.90	62	51	23.82	51	51	100	S. E.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 a. m.	23.92	62	53	23.84	53	53	100	S. E.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	23.93	62	56	23.85	56	55	94	S. E.	16	1.28	....	Light fog	....	0	0	0	.....	.....	.....	....	Foggy.
	8 0 a. m.	23.95	64	58	23.87	58	55	82	S. E.	12	.72	....	Light fog	....	0	0	0	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.95	63	59	23.87	59	55	76	S. E.	12	.72	....	Hazy	....	Cumulus	1-4	S. E.	.....	.....	.....	....	Fair.
	10 0 a. m.	23.97	63	62	23.89	62	57	72	S. E.	12	.72	....	Hazy	....	Cumulus	1-4	S. E.	.....	.....	.....	....	Fair.
	11 0 a. m.	23.98	65	65	23.89	65	59	68	S. E.	4	.08	....	Hazy	....	Cumulus	1-4	0	.....	.....	.....	....	Fair.
	12 0 m ..	23.97	64	64	23.89	64	58	67	S. E.	4	.08	285	Hazy	....	Cumulus	1-4	0	.....	.....	.....	....	Fair.
	1 0 p. m.	23.97	66	65	23.88	65	58	63	E.	5	.12	....	Hazy	....	Cumulus	1-4	S. E.	.....	.....	.....	....	Fair.
	2 0 p. m.	23.97	68	64	23.88	64	58	67	E.	8	.32	....	Hazy	....	Cumulus	1-4	S. E.	.....	.....	.....	....	Fair.
	3 0 p. m.	23.96	67	63	23.87	63	58	72	E.	10	.50	....	Hazy	....	Cumulus	1-4	S. E.	.....	.....	.....	....	Fair.
	4 14 p. m.	23.95	64	62	23.87	62	57	72	E.	7	.24	....	Hazy	....	Cumulus	1-4	S. E.	.....	.....	.....	....	Fair.
	5 0 p. m.	23.95	62	60	23.87	60	57	82	E.	9	.4	....	Hazy	....	Cumulus	1-4	0	.....	.....	.....	....	Fair.
	6 0 p. m.	23.95	62	58	23.87	58	55	82	E.	9	.40	....	Hazy	....	Cumulus	1-4	0	.....	.....	.....	....	Fair.
	7 0 p. m.	23.96	63	51	23.88	51	49	86	E.	12	.72	....	Light fog	....	Cumulus	1-4	0	.....	.....	.....	....	Fair.
	8 0 p. m.	23.95	63	52	23.87	52	50	86	E.	12	.72	....	Light fog	....	Cumulus	1-4	0	.....	.....	.....	....	Fair.
	9 0 p. m.	23.95	61	53	23.87	53	53	100	E.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 p. m.	23.96	65	53	23.87	53	53	100	E.	13	.84	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 39 p m.	23.97	64	53	23.89	53	53	100	E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	12 0 p. m.	23.96	63	54	23.88	54	54	100	E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
Knoxville, Tenn .	7 0 a. m.	29.33	77	72	29.192	71	67	80	E.	5	.12	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	7 7 a. m.	29.33	77	72	29.192	71	67	80	E.	5	.12	..	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	11 32 a. m.	29.34	81	83	29.192	82	71	56	S.	6	.18	94	0	0	Cumulus	1-4	0	.....	.....	.....	....	Fair.
	2 0 p. m.	29.32	83	88	29.167	87	71	42	S. W.	5	.12	....	0	0	Cir. & cu	3-4	0	.....	.....	.....	....	Fair.
	4 7 p. m	29.29	84	89	29.141	88	74	49	S. W.	8	.32	....	Nimbus...	1-4	Cumulus	3-4	S.	.....	.....	.....	....	Cloudy.
	9 0 p. m.	29.31	81	76	29.164	75	72	85	0	0	0	...	0	0	0	0	.....	.....	.....	.....	....	Clear.
	10 32 p. m	29.33	78	74	29.191	73	70	85	S. W.	2	.02	....	0	0	Cir.-cum	4-4	0	.....	.....	.....	....	Cloudy.

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Meteorological record for July 14, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—).	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.94	60	52	23.86	52	52	100	S.E.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23.94	59	51	23.87	51	49	86	S.W.	16	1.28	....	Light fog	....	Cirrus	2-4	0	.....	.....	....	....	Fair.
	3 0 a. m.	23.94	59	51	23.87	51	50	93	S.W.	8	.32	....	Light fog	....	Cirrus	2-4	S. W.	.....	.....	....	....	Fair.
	4 0 a. m.	23.93	57	51	23.86	51	49	86	S. W.	12	.72	....	0	0	Cirrus	2-4	S. W.	.....	.....	....	....	Fair.
	5 0 a. m.	23.95	56	53	23.88	53	50	80	S. W.	9	.40	....	Hazy	....	Cirrus	2-4	0	.....	.....	....	....	Fair.
	6 0 a m.	23.96	58	58	23.89	58	52	64	S. W	8	.32	....	Hazy	....	Cirrus	2-4	0	.....	.....	....	....	Fair.
	7 14 a. m.	23.97	58	60	23.90	60	53	60	S. W.	6	.18	....	Hazy	....	Cirrus	1-4	0	.....	.....	....	....	Fair.
	8 0 a. m.	23.97	59	62	23.90	62	55	61	S. W.	3	.04	....	Hazy	....	Cirrus	1-4	0	.....	.....	....	....	Fair.
	9 0 a. m.	24.00	62	61	23.92	61	57	77	N. W.	2	.02	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	10 0 a. m.	23.99	63	59	23.91	59	56	82	N. W.	2	.02	....	Hazy	....	Cumulus	3-4	E.	.....	.....	....	....	Cloudy.
	11 0 a. m.	24.00	62	60	23.92	60	57	82	S.W.	1	.01	....	Hazy	....	Cumulus	3-4	0	10.23 a. m.	10 32 a. m.	.06	....	Cloudy.
	12 0 m ..	23.99	62	60	23.91	60	58	88	W.	4	.08	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	1 0 p. m.	23.99	62	58	23.91	58	56	88	0	0	0	207	Nimbus	1-4	Cumulus	3-4	0	12.32 p. m.	.....	.02	....	Light rain.
	2 0 p. m.	23.97	64	65	23.89	65	60	73	S. W.	8	.32	....	Hazy	....	Cumulus	3-4	S. W.	.....	1.30 p. m.	.01	....	Cloudy.
	3 0 p. m.	23.97	68	60	23.88	60	58	88	W.	3	.04	....	Hazy	....	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy.
	4 14 p. m.	23.97	66	61	23.88	61	60	94	S. W.	1	.01	....	Hazy	....	Cumulus	3-4	S. W.	3. 40 p. m.	4.14 p. m.	.08	....	Cloudy.
	5 0 p. m.	23.96	66	61	23.87	61	58	82	S. W.	2	.02	....	Hazy	....	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy.
	6 0 p. m	23.96	66	62	23.87	62	57	72	N. W.	6	.18	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	7 0 p. m.	23.95	61	57	23.87	57	55	87	N. W.	8	.32	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	8 0 p. m.	23.97	64	56	23.89	56	55	94	N. W.	6	.18	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	9 0 p. m.	23.99	70	56	23.89	56	55	94	N. W.	2	.02	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Fair.
	10 0 p. m.	23.97	68	56	23.88	56	54	87	N. W.	1	.01	....	Hazy	....	Cirrus	1-4	N. W.	.....	.....	....	....	Fair.
	10 39 p. m.	23.98	67	57	23.89	57	53	75	N. W.	2	.02	....	0	0	Cirrus	1-4	0	.....	.....	....	....	Fair.
	12 0 p. m	23.97	64	56	23.88	56	53	81	W.	4	.08	....	0	0	Cirrus	2-4	0	.....	.....	....	....	Fair.
Knoxville, Tenn .	7 0 a. m	29.39	77	72	29.252	71	68	83	S. W.	5	.12	....	0	0	Cir. & cu	2-4	0	.....	.....	....	....	Fair.
	7 7 a. m.	29.39	77	72	29.252	71	68	83	S. W.	5	.12	....	0	0	Cir. & cu	2-4	0	.....	.....	....	....	Fair.
	11 32 a. m	29.39	81	81	29.242	80	70	58	S. W.	8	.32	103	0	0	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	2 0 p. m.	29.35	82	85	29.200	84	69	44	S. W.	6	.18	....	0	0	Cumulus	1-4	0	.....	.....	....	....	Fair.
	4 7 p. m	29.34	84	88	29.174	87	70	40	S. W.	8	.32	....	0	0	Cumulus	1-4	0	.....	.....	....	....	Fair.
	9 0 p. m.	29.33	72	77	29.170	76	71	76	0	0	0	....	0	0	0	0	.....	.....	.....	....	....	Clear.
	10 32 p. m	29.32	70	75	29.175	74	70	81	S.	2	.02	..	Stratus	3-4	Hazy	....	.....	.....	.....	....	....	Cloudy.

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Meteorological record for July 15, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.95	65	56	23.86	56	54	87	N. W.	1	.01	....	Hazy	....	Cirrus	1-4	N. W.	.....	.....	.....	.....	Fair.
	2 0 a. m.	23.95	65	55	23.86	55	53	87	N. W.	6	.18	....	0	0	Cirrus	2-4	0	.....	.....	.....	.....	Fair.
	3 0 a. m.	23.93	64	55	23.85	55	54	93	N. W.	12	.72	....	Fog	...	0	0	0	.....	.....	.....	.....	Foggy.
	4 0 a. m.	23.93	62	54	23.85	54	54	100	N. W.	16	1.28	....	Fog	....	Hidden	...	.....	.....	.....	.....	.....	Foggy.
	5 0 a. m.	23.93	63	52	23.85	52	52	100	N. W.	16	1.28	....	Fog	....	Hidden	...	.....	.....	.....	.....	.....	Foggy.
	6 0 a. m.	23.93	60	53	23.85	53	53	100	N.	14	.98	....	Hazy	....	Cir., cum	2-4	0	.....	.....	.....	.....	Fair.
	7 14 a. m.	23.92	60	57	23.84	57	53	75	N. E.	23	2.64	....	Hazy	....	Cumulus	2-4	E.	.....	.....	.....	.....	Fair.
	8 0 a. m.	23.92	58	56	23.85	56	53	81	N. E	22	2.42	....	Hazy	....	Cumulus	1-4	N. E.	.....	.....	.....	.....	Fair.
	9 0 a. m.	23.93	59	56	23.86	56	54	87	N. E.	15	1.12	....	Hazy	....	Cumulus	2-4	N. E.	.....	.....	.....	.....	Fair.
	10 0 a. m.	23.95	59	57	23.88	57	55	87	N. W.	11	.60	....	Hazy	....	Cumulus	3-4	N. E.	.....	.....	.....	.....	Cloudy.
	11 0 a. m.	23.94	59	58	23.87	58	55	82	N. W.	14	.98	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	12 0 m ..	23.94	59	57	23.87	57	57	100	N. W.	15	1.12	212	Fog	....	Hidden	...	.....	.....	.....	.....	.....	Foggy.
	1 0 p. m.	23.92	68	62	23.83	62	58	77	N. W.	8	.32	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	.....	.....	Cloudy.
	2 0 p. m.	23.92	65	61	23.83	61	58	82	N. W.	7	.24	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	.....	.....	Cloudy.
	3 0 p. m.	23.90	64	61	23.82	61	58	82	N. W.	8	.32	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	.....	Cloudy.
	4 14 p. m.	23.89	62	59	23.81	59	59	100	N. W.	4	.08	....	Fog	....	Hidden	...	.....	.....	.....	.....	.....	Foggy.
	5 0 p. m.	23.87	60	54	23.79	54	54	100	N. W.	18	1.62	....	Nimbus	4-4	Hidden	...	.....	4.25 p. m.	.....	.16	....	Heavy rain.
	6 0 p. m.	23.83	58	52	23.76	52	52	100	N. E.	28	3.92	....	Nimbus	4-4	Hidden	...	.....	.....	.....	.10	....	Light rain.
	7 0 p. m.	23.81	58	53	23.74	53	51	86	N. E	24	2.88	....	Nimbus	1-4	Cumulus	2-4	0	.....	.....	.04	....	Light rain.
	8 0 p. m.	23.83	59	54	23.76	54	52	87	N. E.	8	.32	....	0	0	Cumulus	2-4	0	.....	7.15 p. m.	.01	....	Fair.
	9 0 p. m	23.83	57	54	23.76	54	52	87	N. E.	26	3.38	....	Light fog	....	Cumulus	2-4	0	.....	.....	.....	....	Fair.
	10 0 p. m.	23.83	57	55	23.76	55	52	80	N. E.	16	1.28	....	Light fog	....	Cirrus ..	4-4	0	.....	.....	.....	....	Fair.
	10 39 p. m.	23.84	57	55	23.77	55	52	80	N. E.	18	1.62	....	0	0	Cirrus...	1-4	0	.....	.....	.....	....	Fair.
	12 0 p. m.	23.83	59	55	23.76	55	52	80	N. E.	12	.72	....	Light fog	....	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.34	79	73	29.187	72	70	87	0	0	0	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	7 7 a. m	29.33	79	73	29.187	72	70	87	0	0	0	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	11 32 a. m	29.34	84	85	29.184	84	72	53	S W.	3	.04	79	0	0	Cumulus	3-4	N. E.	.....	.....	.....	.....	Cloudy.
	2 0 p. m.	29.27	86	89	29.110	88	74	49	S.W.	5	.12	....	Hazy	....	Cir.-cum	2-4	0	.....	.....	.....	.....	Fair.
	4 7 p. m.	29.31	83	70	29.159	69	67	90	E.	11	.60	....	Nimbus..	4-4	Hidden	...	.....	4.00 p. m.	5.30 a. m.	.32	....	Light rain.
	9 0 p. m.	29.25	74	70	29.122	69	67	90	N.	3	.04	....	Stratus ...	1-4	Hazy ...	....	.....	.....	.....	.....	.....	Clearing.
	10 32 p. m.	29.24	75	69	29.109	68	66	90	0	0	0	....	Stratus ...	2-4	Hazy ...	....	.....	.....	.....	.....	.....	Cloudy.

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Meteorological record for July 16, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM.		Corrected barometer.	HYGROM.		WIND.			LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Thermom e t e r, daily mean.	Remarks.
			Attached.	Exposed.		Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Tress u r e per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction (moving from—)	Commen'd.	Ended.			
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.82	57	55	23.75	55	52	80	N. E.	16	1.28		Light fog		Cirrus	3-4					Cloudy.
	2 0 a. m.	23.82	56	54	23.75	54	52	87	N. E.	12	.72		Light fog		Cirrus	2-4					Fair.
	3 0 a. m.	23.82	56	54	23.75	54	53	93	N. E.	12	.72		Light fog		Cir.-cum	2-4					Fair.
	4 0 a. m.	23.83	57	53	23.76	53	53	93	N. E.	12	.72		Light fog		Cumulus	1-4					Fair.
	5 0 a. m.	23.84	57	53	23.77	53	53	93	N. E.	16	1.28		Light fog		Cumulus	1-4					Fair.
	6 0 a. m.	23.85	58	53	23.78	53	52	93	N. E.	16	1.28		Hazy		Cumulus	2-4					Fair.
	7 14 a. m.	23.86	60	55	23.78	55	55	100	N. E.	20	2.00		Fog		Hidden		0				Foggy.
	8 0 a. m.	23.86	62	56	23.78	56	55	93	N. E.	19	1.80		Light fog		Cir.-cum	1-4	N. E.				Foggy.
	9 0 a. m.	23.86	63	61	23.78	62	56	82	N. E.	11	.60		Hazy		Cumulus	2-4	N. E.				Fair.
	10 0 a. m.	23.87	63	62	23.77	62	56	83	N. E.	8	.32		Hazy		Cumulus	2-4					Fair.
	11 0 a. m.	23.87	65	60	23.78	60	60	100	N. E.	6	.18		Fog		Hidden						Foggy.
	12 0 m.	23.85	63	61	23.77	60	60	94	N. E.	2	.02	336	Light fog		Cumulus	3-4	N. E.				Cloudy.
	1 0 p. m.	23.86	65	61	23.77	61	60	78	N. W.	2	.02		Hazy		Cumulus	3-4	N. W.				Cloudy.
	2 0 p. m.	23.85	67	62	23.76	62	60	88	N. W.	4	.08		Hazy		Cumulus	3-4	N. W.				Cloudy.
	3 0 p. m.	23.84	68	63	23.75	63	61	78	N. W.	2	.02		Hazy		Cumulus	3-4	N. W.				Cloudy.
	4 14 p. m.	23.85	71	67	23.75	67	62	74	N. W.	2	.02		Hazy		Cumulus	3-4	N. W.				Cloudy.
	5 0 p. m.	23.84	72	65	23.74	63	60	73	N. W.	4	.08		Hazy		Cir.-cum	2-4	N. W.				Fair.
	6 0 p. m.	23.84	72	64	23.74	64	59	74	N. W.	2	.02		Hazy		Cirrus	2-4	0				Fair.
	7 0 p. m.	23.86	65	61	23.77	61	60	78	N. W.	2	.02		Hazy		Cirrus	2-4	N. E.				Fair.
	8 0 p. m.	23.86	67	60	23.76	60	58	88	N. W.	0	0		Light fog	0	0						Foggy.
	9 0 p. m.	23.86	72	58	23.77	58	56	88	N. W.	4	.08		0		Cirrus	1-4	0				Fair.
	10 0 p. m.	23.86	65	57	23.77	57	56	94	N. W.	3	.04		Light fog		0	0	0				Fair.
	10 39 p. m.	23.86	64	57	23.78	57	56	94	N. W.	4	.08		Light fog		0	0	0				Fair.
	12 0 p. m.	23.85	68	56	23.77	56	53	83	N. W.	2	.02		Light fog		Cirrus	1-4	0				Fair.
	1 0 a. m.	23.83	72	63	23.77	63	60	90	N. E.	8	.32		Stratus	4-4	Hidden						Cloudy.
	7 a. m.	23.83	72	69	23.76	69	66	90	N. E.	8	.32		Stratus	4-4	Hidden			12 40 a. m.	In night.	.06	Cloudy.
	7 a. m.	23.84	72	69	23.77	68	66	90	N. E.	8	.32	194	Stratus	4-4	Cumulus	1-4	E.				Clearing.
Knoxville, Tenn.	2 0 p. m.	30.11	82	84	30.041	83	74	82	E.	6	.18		0	0	Cumulus	2-4	N. E.				Fair.
	4 7 p. m.	30.17	85	86	30.014	87	73	53	N. W.	6	.18		Hazy		Cumulus	1-4	N. E.				Fair.
	9 0 p. m.	30.17	83	80	30.01*	79	73	84	N.	4	.04		Hazy		Cumulus	1-4					Clear.
	10 39 p. m.	30.17	88	77	30.021	78	74	86	0	0	0		0	0	0	0	0				Clear.

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Meteorological record for July 17, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.84	61	56	23.76	56	55	93	W.	4	.08	....	Light fog	....	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	2 0 a. m.	23.82	60	56	23.74	56	55	93	W.	6	.18	....	Light fog	....	Cirrus	2-4	0	.....	.....	.....	....	Fair.
	3 0 a. m.	23.81	60	55	23.73	55	54	93	W.	8	.32	....	Light fog	....	Cirrus	2-4	0	.....	.....	.....	....	Fair.
	4 0 a. m.	23.81	61	56	23.73	56	55	93	N. W.	8	.32	....	Light fog	....	Cirrus	2-4	0	.....	.....	.....	....	Fair.
	5 0 a. m.	23.83	63	56	23.75	56	55	93	N. W.	8	.32	....	0	0	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	6 0 a. m.	23.83	65	58	23.75	58	57	94	N. W.	8	.32	....	Hazy	....	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	7 14 a. m.	23.83	63	61	23.75	61	58	82	N. W.	12	.72	....	Hazy	...	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	8 0 a. m.	23.84	63	61	23.76	61	58	82	N. W.	10	.50	....	Hazy	....	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	9 0 a. m.	23.84	64	62	23.76	62	60	88	N. W.	10	.50	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	....	Fair.
	10 0 a. m.	23.86	66	64	23.77	64	58	67	N. W.	8	.32	....	Hazy	....	Cumulus	2-4	0	.....	.....	.....	....	Fair.
	11 0 a. m.	23.86	66	62	23.77	62	58	77	N. W.	8	.32	....	Hazy	....	Cumulus	3-4	0	.....	.....	.....	....	Cloudy.
	12 0 m ..	23.86	68	63	23.77	63	60	83	N. W.	4	.08	122	Hazy	....	Cumulus	3-4	0	.....	.....	.....	....	Cloudy.
	1 0 p. m.	23.85	67	64	23.76	64	61	83	N. W.	2	.02	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	2 0 p. m.	23.84	66	65	23.75	65	62	84	N. W.	4	.08	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	.....	....	Cloudy.
	3 0 p. m.	23.84	66	65	23.75	65	61	78	N. W.	2	.02	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	4 14 p. m.	23.83	68	67	23.74	67	63	79	0	0	0	....	Fog	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	5 0 p. m.	23.83	65	64	23.74	64	61	83	W.	2	.02	...	Fog	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	6 0 p. m.	23.83	67	66	23.74	66	63	74	N. W.	4	.08	....	Fog	....	Cumulus	3-4	W.	.....	.....	.....	....	Cloudy.
	7 0 p. m.	23.85	67	64	23.76	64	60	78	0	0	0	...	Hazy	....	Cumulus	2-4	0	.....	.....	.....	....	Fair.
	8 0 p. m.	23.83	65	60	23.74	60	59	94	S. W.	2	.02	....	Hazy	....	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	9 0 p. m.	23.84	67	58	23.75	58	57	94	S. W.	8	.32	....	Light fog	....	Cirrus	2-4	0	.....	.....	.....	....	Fair.
	10 0 p. m.	23.83	66	58	23.74	58	57	94	S. W.	10	.50	....	Light fog	....	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	10 39 p. m.	23.82	63	58	23.74	58	57	94	S. W.	12	.72	....	0	0	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	12 0 p. m.	23.81	62	58	23.73	58	57	94	S. W.	16	1.28	....	Light fog	....	0	0	0	.....	.....	.....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.18	77	74	29.044	73	72	95	0	0	0	....	Fog	....	Hidden	...	.....	.....	.....	.....	....	Foggy.
	7 7 a. m.	29.18	77	74	29.044	73	72	95	0	0	0	...	Fog	....	Hidden	...	.....	.....	.....	.....	....	Foggy.
	11 32 a. m.	29.20	85	87	29.044	86	76	61	S. E.	3	.04	57	Hazy	....	Cumulus	3-4	0	.....	.....	.....	....	Cloudy.
	2 0 p. m.	29.14	87	90	28.978	89	76	52	N. W.	6	.18	....	Hazy	....	Cir. & cum.	2-4	N. W.	.....	.....	.....	....	Fair.
	4 7 p. m.	29.12	87	89	28.959	82	76	53	W.	4	.08	....	Hazy	....	Cumulus	3-4	0	.....	.....	.....	....	Cloudy.
	9 0 p. m.	29.12	85	81	28.964	80	76	82	N. W.	3	.04	....	Hazy	....	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	10 32 p. m.	29.11	83	78	28.964	77	75	88	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.

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Meteorological record for July 18, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from —)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.80	62	57	23.72	57	56	94	S. W.	16	1.28	....	Light fog	....	Cirrus	1-8	0	.....	.....	.....	.....	Fair.
	2 0 a. m.	23.78	62	57	23.70	57	56	94	S. W.	16	1.28	....	Light fog	....	Cirrus	1-4	0	.....	.....	.....	.....	Fair.
	3 0 a. m.	23.77	63	58	23.69	58	57	94	S. W.	20	2.00	....	Fog	....	Cirrus	2-4	0	.....	.....	.....	.....	Foggy.
	4 0 a. m.	23.78	63	57	23.70	57	57	100	S. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	5 0 a. m.	23.78	62	57	23.70	57	57	100	S. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	6 0 a. m.	23.76	62	58	23.68	58	58	100	W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	7 14 a. m.	23.77	62	59	23.69	59	59	100	W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	8 0 a. m.	23.78	61	59	23.70	59	59	100	W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	9 0 a. m.	23.79	63	60	23.71	60	59	94	W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	10 0 a. m.	23.79	65	62	23.70	62	60	88	W.	12	.72	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	.....	.....	Cloudy.
	11 0 a. m.	23.79	66	65	23.70	65	62	84	N. W.	12	.72	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	.....	Fair.
	12 m.....	23.78	65	65	23.69	65	61	78	N. W.	12	.72	242	Hazy	....	Cumulus	3-4	N. W.	11.45 a. m.	11.55 a. m.	.02	....	Cloudy.
	1 0 p. m.	23.77	63	61	23.69	61	57	77	N. W.	12	.72	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	.....	....	Threatening.
	2 0 p. m.	23.74	59	55	23.67	55	55	100	W.	18	1.62	....	Nimbus	4-4	Hidden	....	.....	1.35 p. m.	.....	.34	....	Heavy rain.
	3 0 p. m.	23.73	62	56	23.65	56	56	100	N. W.	18	1.62	....	Fog	....	Hidden	....	.....	.....	2.45 p. m.	.02	....	Foggy.
	4 14 p. m.	23.74	62	58	23.66	58	58	100	N. W.	22	2.42	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 p. m.	23.72	63	59	23.64	59	57	88	W.	18	1.62	....	Light fog	....	Cirrus	2-4	0	.....	.....	.....	....	Foggy.
	6 0 p. m.	23.72	63	59	23.64	59	57	88	W.	18	1.62	....	Light fog	....	Cirrus	2-4	0	.....	.....	.....	....	Foggy.
	7 0 p. m.	23.71	60	56	23.63	56	55	93	N. W.	20	2.00	....	Hazy	....	Cir.,cum.	3-4	0	.....	.....	.....	....	Cloudy.
	8 0 p. m.	23.73	60	55	23.65	55	54	93	N. W.	24	2.88	....	Fog	....	Cirrus	3-4	0	.....	.....	.....	....	Cloudy.
	9 0 p. m.	23.75	60	57	23.67	57	56	94	N. W.	24	2.88	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 p. m.	23.75	62	56	23.67	56	56	100	W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 39 p. m.	23.74	61	56	23.66	56	56	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	12 0 p. m.	23.75	60	54	23.67	54	54	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.13	81	77	28.984	76	72	81	S. W.	8	.32	....	Hazy	....	Cumulus	4-4	S. W.	1.50 p. m.	2.20 p. m.	.....	....	Cloudy.
	7 7 a. m.	29.13	81	77	28.984	76	72	81	S. W.	8	.32	....	Hazy	....	Cumulus	4-4	S. W.	.....	.....	.15	....	Cloudy.
	11 32 a. m.	29.12	86	84	28.961	83	74	64	S. W.	12	.72	147	Stratus	1-4	Cumulus	2-4	W.	.....	.....	.....	....	Cloudy.
	2 0 p. m.	29.07	85	79	28.914	78	73	78	N.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	4 7 p. m.	29.05	82	77	28.902	76	72	81	E.	8	.32	....	Nimbus	2-4	Cumulus	4-4	0	.....	.....	.....	....	Threatening.
	9 0 p. m.	29.11	78	70	28.972	69	67	92	W.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	10 39 p. m.	29.11	78	70	28.972	69	67	87	W.	6	.18	....	Stratus	2-4	Hazy	....	.....	6.15 p. m.	7.30 p. m.	.08	....	Clearing.

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Meteorological record for July 19, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.73	60	53	23.65	53	53	100	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	2 0 a. m.	23.71	60	52	23.63	52	52	100	N. W.	16	1.28	....	Light fog	....	Cirrus	2-4	0	.....	.....	.....	.....	Fair.
	3 0 a. m.	23.71	58	53	23.64	53	53	100	W.	18	1.62	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	4 0 a. m.	23.71	60	54	23.63	54	54	100	N. W.	17	1.44	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	5 0 a. m.	23.72	59	54	23.65	54	54	100	N. W.	18	1.62	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	6 0 a. m.	23.74	60	54	23.66	54	54	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	5.40 a. m.	.....	.02	....	Light rain.
	7 14 a. m.	23.74	59	54	23.67	54	54	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	6.10 a. m.	.01	....	Foggy.
	8 0 a. m.	23.74	59	55	23.67	55	55	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	9 0 a. m.	23.76	62	55	23.68	55	55	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	10 0 a. m.	23.78	62	56	23.70	56	56	100	W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	11 0 a. m.	23.80	60	59	23.72	59	57	88	W.	8	.32	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	12 0 m.	23.78	61	59	23.70	59	56	82	W.	8	.32	390	Hazy	....	Cir	2-4	S. E.	.....	.....	.....	.....	Fair.
															Cumulus	2-4	N. W.					
	1 0 p. m.	23.78	63	61	23.70	61	55	66	N. W.	8	.32	....	Hazy	....	Cir., cum	2-4	N. W.	.....	.....	.....	.....	Fair.
	2 0 p. m.	23.77	64	59	23.69	59	54	70	N. W.	6	.18	....	Hazy	....	Cir., cum	2-4	N. W.	.....	.....	.....	.....	Fair.
	3 0 p. m.	23.75	62	59	23.67	59	54	70	N. W.	8	.32	....	Hazy	....	Cir., cum	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	4 14 p. m.	23.74	62	56	23.66	56	54	87	N. W.	8	.32	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	.....	.....	Cloudy.
	5 0 p. m.	23.74	62	53	23.66	53	52	93	N. W.	8	.32	....	Nimbus	4-4	Hidden	....	.....	5.00 p. m.	5.05 p. m.	Bl'k	....	Light rain.
	6 0 p. m.	23.74	62	52	23.66	52	50	86	N. W.	16	1.28	....	Hazy	....	Cir., cum	4-4	0	.....	.....	.....	.....	Cloudy.
	7 0 p. m.	23.73	60	51	23.65	51	48	79	N. W.	18	1.62	....	Hazy	....	Cir., cum	2-4	0	.....	.....	.....	.....	Fair.
	8 0 p. m.	23.73	60	51	23.65	51	51	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	9 0 p. m.	23.75	62	50	23.67	50	50	100	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	10 0 p. m.	23.77	62	50	23.69	50	50	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	10 39 p. m.	23.76	63	49	23.68	49	49	100	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	12 0 p. m.	23.76	62	48	23.68	48	47	93	N. W.	12	.72	....	0	0	Cirrus	2-4	0	.....	.....	.....	.....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.14	76	71	29.007	70	69	92	S. W.	3	.04	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	Cloudy.
	7 7 a. m.	29.14	76	71	29.007	70	69	92	S. W.	3	.04	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	.....	Cloudy.
	11 32 a. m.	29.18	83	81	29.028	80	72	66	S.	12	.72	149	0	0	Cumulus	1-4	W.	.....	.....	.....	.....	Clearing.
	2 0 p. m.	29.13	80	79	28.986	78	72	73	E.	8	.32	....	Stratus	2-4	Cu. & cir	2-4	0	.....	.....	.....	.....	Cloudy.
	4 7 p. m.	29.13	77	77	28.994	76	71	76	S. W.	8	.32	....	Stratus	2-4	Cumulus	4-4	N. W.	3.30 p. m.	4.00 p. m.	.01	....	Cloudy.
	9 0 p. m.	29.17	76	73	29.047	72	65	67	N.	6	.18	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	10 32 p. m.	29.18	75	71	29.049	70	64	71	N.	4	.08	....	0	0	0	0	0	.....	.....	.....	.....	Clear.

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Meteorological record for July 20, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.75	60	47	23.67	47	46	92	N. W.	14	.98	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	2 0 a. m.	23.76	62	49	23.68	49	48	93	N. W.	16	1.28	....	Light fog.	....	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	3 0 a. m.	23.75	60	48	23.67	48	47	93	S. W.	14	.98	....	0	0	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	4 0 a. m.	23.74	59	49	23.67	49	47	85	S. W.	16	1.28	....	0	0	Cir., cum	2-4	S.W.	.....	.....	....	....	Cloudy.
	5 0 a. m.	23.73	56	49	23.66	49	47	85	S.W.	14	.98	....	Hazy	....	Cir., cum	3-4	S.W.	.....	.....	....	....	Cloudy.
	6 0 a. m.	23.74	57	50	23.67	50	48	86	W.	12	.72	....	Fog	....	Cir., cum	3 4	S.W.	.....	.....	....	....	Cloudy.
	7 14 a. m.	23.75	56	51	23.68	51	49	86	W.	8	.32	....	Hazy	....	Cir., cum	4-4	0	.....	.....	....	....	Cloudy.
	8 0 a. m.	23.75	56	52	23.69	52	49	79	N. W.	8	.32	....	Hazy	....	Cir., cum	4-4	0	.....	.....	....	....	Cloudy.
	9 0 a. m.	23.76	59	52	23.69	50	50	86	N. W.	4	.08	....	Fog	....	Cir., cum	3-4	N. W.	.....	.....	....	....	Cloudy.
	10 0 a. m.	23.76	57	54	23.69	54	52	87	S. W.	8	.32	....	Fog	....	Hidden	....	....	.....	.....	....	....	Foggy.
	11 0 a. m.	23.79	62	55	23.71	55	51	74	N. W.	8	.32	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	12 0 m.	23.78	63	54	23.70	54	52	87	N. W.	4	.08	276	Light fog	....	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	1 0 p. m.	23.74	62	59	23.66	59	56	82	S. W.	4	.08	....	Fog	....	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	2 0 p. m.	23.74	66	55	23.65	55	53	87	S. W.	4	.08	....	Fog	....	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	3 0 p. m.	23.74	64	54	23.66	54	51.5	83	W.	4	.08	....	Fog	....	Hidden	....	....	.....	.....	....	....	Foggy.
	4 14 p. m.	23.72	59	53	23.65	53	52	93	W.	8	.32	....	Fog	....	Hidden	....	....	.....	.....	....	....	Foggy.
	5 0 p. m.	23.71	60	55	23.64	55	52	80	N. W.	6	.18	....	Hazy	....	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	6 0 p. m.	23.72	65	55	23.63	55	52	80	W.	4	.08	....	Fog	....	Hidden	....	....	.....	.....	....	....	Foggy.
	7 0 p. m.	23.73	65	52	23.64	52	50.5	89	W.	4	.08	....	Fog	....	Cumulus	2-4	0	.....	.....	....	....	Cloudy.
	8 0 p. m.	23.74	66	51	23.65	51	50	93	0	0	0	....	Fog	....	Hidden	....	....	.....	.....	....	....	Foggy.
	9 0 p. m.	23.75	67	51	23.66	51	50	93	0	0	0	....	Fog	....	Hidden	....	....	.....	.....	....	....	Foggy.
	10 0 p. m.	23.75	69	49	23.66	49	48.5	96	S.W.	4	.08	....	Fog	....	Hidden	....	....	.....	.....	....	....	Foggy.
	10 39 p. m.	23.75	68	50	23.66	50	49.5	96	W.	8	.32	....	Fog	....	Hidden	....	....	.....	.....	....	....	Foggy.
	12 0 p. m.	23.73	65	50	23.64	50	49	93	W.	8	.32	....	Light fog	....	Cumulus	2-4	W.	.....	.....	....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.18	67	66	29.070	65	61	78	N.	8	.32	....	0	0	Cirrus ..	3-4	W.	.....	.....	....	....	Cloudy.
	7 7 a. m.	29.18	67	66	29.070	65	61	78	N.	8	.32	....	0	0	Cirrus ..	3-4	W.	.....	.....	....	....	Cloudy.
	11 32 a. m.	29.18	76	76	29.047	75	66	57	E.	6	.18	130	Stratus ...	1-4	Cirrus ..	2-4	0	.....	.....	....	....	Cloudy.
	2 0 p. m.	29.15	78	78	29.012	76	64	49	N.	13	.54	....	Stratus ...	3-4	0	0	0	.....	.....	....	....	Cloudy.
	4 7 p. m.	29.12	77	77	28.984	76	64	49	N.	16	1.28	....	0	0	Cu. & cir	3-4	S.W.	.....	.....	....	....	Cloudy.
	9 0 p. m.	29.16	74	69	29.032	68	64	79	N.	4	.08	....	Stratus ...	1-4	0	0	0	.....	.....	....	....	Fair.
	10 39 p. m.	29.17	72	67	29.040	66	62	76	N.	5	.12	....	Stratus ...	1-4	0	0	0	.....	.....	....	....	Fair.

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Meteorological record for July 21, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.73	64	49	23.65	49	49	100	W.	8	.32		Fog		Hidden							Foggy.
	2 0 a. m.	23.73	66	48	23.64	49	47.5	96	W.	4	.06		Fog		Hidden							Cloudy.
	3 0 a. m.	23.72	63	46	23.64	46	45	92	W.	4	.06		Light fog		Cumulus	2-4	W.					Foggy.
	4 0 a. m.	23.70	61	47	23.62	47	46	92	W.	4	.06		Fog		Hidden							Foggy.
	5 0 a. m.	23.71	62	47	23.63	48	46	92	W.	4	.06		Fog		Hidden							Foggy.
	6 0 a. m.	23.74	66	48	23.65	48	48	100	N. W.	8	.32		Light fog		Cumulus	1-4	0					Fair.
	7 14 a. m.	23.74	63	48	23.66	48	48	100	N. W.	4	.06		Fog		Cumulus	3-4	N. W.					Foggy.
	8 0 a. m.	23.75	64	51	23.67	51	50	93	N. W.	4	.06		Hazy		Cumulus	3-4	N. W.					Cloudy.
	9 0 a. m.	23.76	64	49	23.68	49	47	85	N. W.	3	.04		Hazy		Cumulus	3-4	N. W.					Cloudy.
	10 0 a. m.	23.77	63	53	23.69	53	50	80	N. W.	4	.06		Hazy		Cumulus	4-4	N. W.					Cloudy.
	11 0 a. m.	23.78	63	55	23.70	55	53	80	N. W.	4	.06	.102	Hazy		Cumulus	3-4	N. W.					Cloudy.
	12 0 m	23.78	65	54	23.69	54	50	74	N. W.	5	.12		Hazy		Cumulus	4-4	N. W.					Cloudy.
	1 0 p. m.	23.78	68	54	23.69	54	50	74	N. W.	5	.12		Hazy		Cumulus	3-4	S. E.					Cloudy.
	2 0 p. m.	23.78	70	59	23.68	57	52	69	S. W.	4	.06		Hazy		Cumulus	3-4	E.					Cloudy.
	3 0 p. m.	23.78	67	57	23.68	57	52	69	N. W.	4	.06		Hazy		Cir., cum	2-4	N.					Fair.
	4 14 p. m.	23.77	63	56	23.69	56	53	70	N. W.	4	.06		Hazy		Cir., cum	2-4	0					Fair.
	5 0 p. m.	23.77	61	55	23.69	55	51	74	N. W.	4	.06		Hazy		Cir., cum	2-4	N. W.					Fair.
	6 0 p. m.	23.78	62	51	23.70	51	47	72	N. W.	4	.06		Hazy		Cir., cum	2-4	W.					Fair.
	7 0 p. m.	23.80	67	51	23.71	51	47	72	N. W.	4	.06		Hazy		Cir., cum	2-4	W.					Fair.
	8 0 p. m.	23.84	64	48	23.74	48	45	78	N. W.	2	.02		Hazy		Cir., cum	2-4	0					Fair.
	9 0 p. m.	23.83	63	47	23.73	47	45	85	0	0	0		0	0	0	0	0					Clear.
	10 0 p. m.	23.85	63	47	23.77	47	45	85	W.	4	.06		0	0	Cumulus	1-4	0					Fair.
	10 30 p. m.	23.85	64	47	23.77	47	45	85	N. W.	4	.06		0	0	Cumulus	1-4	0					Fair.
	12 0 p. m.	23.85	65	46	23.76	46	44	84	S. E.	4	.06		0	0	Cumulus	1-4	0					Fair.
	7 0 a. m.	29.20	71	65	29.080	64	60	78	N. E.	4	.06		0	0	0	0	0					Clear.
	7 7 a. m.	29.20	71	65	29.080	64	60	78	N. E.	4	.06		0	0	0	0	0					Clear.
	11 39 a. m.	29.23	76	76	29.097	75	61	39	E.	5	.12	.136	0	0	Cumulus	1-4	N. E.					Clear.
Knoxville, Tenn.	2 0 p. m.	29.18	77	77	29.043	76	61	38	N. E.	12	.72		0	0	Cir. & cu	2-4	N.					Fair.
	4 7 p. m.	29.18	78	80	29.042	79	61	30	N.	8	.32		0	0	Cumulus	1-4	N.					Fair.
	9 0 p. m.	29.24	75	69	29.109	68	63	73	N. E.	3	.04		0	0	0	0	0					Clear.
	10 32 p. m.	29.25	72	67	29.126	66	62	79	N. E.	4	.06		0	0	0	0	0					Clear.

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Meteorological record for July 22, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity, per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23. 85	64	46	23. 77	46	44	84	S. E.	5	.12	....	Hazy	....	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	2 0 a. m.	23. 85	63	46	23. 77	46	44	84	S. E.	5	.12	....	0	0	Cumulus	3-4	0	.....	.....	.....	.....	Cloudy.
	3 0 a. m.	23. 85	61	46	23. 77	46	44	84	S.W.	4	.08	....	0	0	Cumulus	2-4	0	.....	.....	.....	.....	Fair.
	4 0 a. m.	23. 86	61	46	23. 78	46	45	92	S.W.	4	.08	....	Light fog	.....	Cumulus	3-4	0	.....	.....	.....	.....	Cloudy.
	5 0 a. m.	23. 87	61	46	23. 79	46	45	92	S.	4	.08	....	Hazy	.....	Cirrus	1-4	0	.....	.....	.....	.....	Fair.
	6 0 a. m.	23. 89	61	47	23. 81	47	46	92	S. E.	4	.08	....	Hazy	.....	Cumulus	3-4	0	.....	.....	.....	.....	Cloudy.
	7 14 a. m.	23. 90	62	51	23. 82	51	48	79	S. E.	4	.08	....	Hazy	.....	Cir.-cum.	3-4	0	.....	.....	.....	.....	Cloudy.
	8 0 a. m.	23. 91	62	56	23. 83	56	52	75	S. E.	6	.18	....	Hazy	.....	Cirrus	2-4	0	.....	.....	.....	.....	Fair.
	9 0 a. m.	23. 93	60	60	23. 83	60	54	65	S. E.	4	.08	....	Hazy	.....	Cumulus	2-4	S. E.	.....	.....	.....	.....	Fair.
	10 0 a. m.	23. 94	67	56	23. 85	56	51	69	S. E.	4	.08	....	Hazy	.....	Cumulus	4-4	E.	.....	.....	.....	.....	Cloudy.
	11 0 a. m.	23. 94	63	54	23. 86	54	51	80	N. E.	4	.08	....	Hazy	.....	Cumulus	4-4	E.	.....	.....	.....	.....	Cloudy.
	12 0 m..	23. 94	63	60	23. 86	60	56	76	S.W.	2	.02	103	Fog	.....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	1 0 p. m.	23. 94	63	55	23. 86	55	53	87	E.	4	.08	....	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	2 0 p. m.	23. 94	65	60	23. 85	60	55	71	S.	8	.32	....	Hazy	.....	Cumulus	3-4	S. E.	.....	.....	.....	.....	Cloudy.
	3 0 p. m.	23. 94	66	58	23. 85	58	54	76	E.	8	.32	....	Hazy	.....	Cumulus	4-4	E.	.....	.....	.....	.....	Cloudy.
	4 14 p. m.	23. 94	68	60	23. 85	60	56	76	S. E.	4	.08	....	Hazy	.....	Cumulus	3-4	E.	.....	.....	.....	.....	Cloudy.
	5 0 p. m.	23. 93	66	58	23. 84	58	55	82	S.	4	.08	....	Hazy	.....	Cumulus	3-4	E.	.....	.....	.....	.....	Cloudy.
	6 0 p. m.	23. 93	64	56	23. 84	56	53	81	E.	3	.04	....	Light fog	.....	Cumulus	1-4	E.	.....	.....	.....	.....	Foggy.
	7 0 p. m.	23. 94	63	53	23. 86	53	52	93	S. E.	4	.08	....	Fog	.....	Cumulus	1-4	0	.....	.....	.....	.....	Foggy.
	8 0 p. m.	23. 97	70	51	23. 87	51	49	86	S. E.	4	.08	....	0	0	Cumulus	4-4	0	.....	.....	.....	.....	Cloudy.
	9 0 p. m.	23. 98	71	51	23. 86	51	51	100	S.	4	.08	....	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	10 0 p. m.	24. 00	72	50	23. 90	50	50	100	S.	7	.24	....	Light fog	.....	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	10 39 p. m.	23. 99	68	50	23. 90	50	50	100	S.	7	.24	....	Light fog	.....	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	12 0 p. m.	23. 98	68	50	23. 89	50	50	100	S.W.	7	.24	....	Light fog	.....	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
Knoxville, Tenn.	7 0 a. m.	29. 34	66	64	29. 231	63	60	83	N. E.	6	.18	....	Stratus	4-4	Hidden	.....	.....	.....	.....	.....	.....	Cloudy.
	7 7 a. m.	29. 34	66	64	29. 231	63	60	83	N. E.	6	.18	....	Stratus	4-4	Hidden	.....	.....	.....	.....	.....	.....	Cloudy.
	11 32 a. m.	29. 35	77	77	29. 119	76	66	54	E.	8	.32	136	0	0	Cirrus	3-4	W.	.....	.....	.....	.....	Fair.
	2 0 p. m.	29. 33	78	83	29. 190	82	69	49	E.	4	.08	....	0	0	Cir. & cu.	4-4	0	.....	.....	.....	.....	Cloudy.
	4 7 p. m.	29. 32	80	83	29. 174	82	67	42	N. E.	7	.24	....	0	0	Cirrus	4-4	0	.....	.....	.....	.....	Cloudy.
	9 0 p. m.	29. 35	77	75	29. 212	74	70	81	0	0	0	....	0	0	Cirrus	4-4	0	.....	.....	.....	.....	Cloudy.
	10 32 p. m.	29. 35	76	73	29. 216	72	69	85	E.	1	.01	....	Stratus	1-4	Cirrus	3-4	0	.....	.....	.....	.....	Cloudy.

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Meteorological record for July 23, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.98	66	50	23.89	50	49	93	S.	8	.32	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23.98	64	49	23.90	49	48	93	S.	8	.32	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.98	69	49	23.88	49	49	93	S. W.	4	.08	....	0	0	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	4 0 a. m.	23.98	69	49	23.88	49	45	71	S.	3	.04	....	0	0	Cumulus	1-4	0	.....	.....	....	....	Fair.
	5 0 a. m.	23.97	65	51	23.88	51	45	59	S. W.	5	.12	....	Light fog	.....	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	6 0 a. m.	23.98	64	52	23.90	52	46	60	W.	2	.02	....	Hazy	.....	Cir.,cum	2-4	0	.....	.....	....	....	Fair.
	7 14 a. m.	23.99	65	53	23.90	53	50	80	W.	4	.08	....	Hazy	.....	Cir.,cum	3-4	0	.....	.....	....	....	Cloudy.
	8 0 a. m.	24.00	66	65	23.91	55	51	80	N.W.	4	.08	....	Hazy	.....	Cir.,cum	2-4	0	.....	.....	....	....	Fair.
	9 0 a. m.	24.01	66	56	23.92	56	55	93	N.	4	.08	....	Hazy	.....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	10 0 a. m.	24.04	70	59	23.94	59	53	65	0	0	0	....	Hazy	.....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	11 0 a. m.	24.04	69	59	23.94	59	53	65	N.W.	4	.08	....	Hazy	.....	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	12 0 m...	24.03	65	60	23.94	60	53	60	0	0	0	106	Hazy	.....	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	1 0 p. m.	24.01	65	60	23.92	60	55	71	0	0	0	....	Hazy	.....	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	2 0 p. m.	24.01	67	64	23.92	64	57	62	W.	2	.02	....	Hazy	.....	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	3 0 p. m.	24.00	69	66	23.90	66	57	54	N.W.	2	.02	....	Hazy	.....	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	4 14 p. m.	24.00	72	65	23.90	65	55	49	W.	4	.08	....	Hazy	.....	Cumulus	2-4	0	.....	.....	....	....	Fair.
	5 0 p. m.	23.99	70	65	23.89	65	56	53	W.	4	.08	....	Hazy	.....	Cumulus	2-4	0	.....	.....	....	....	Fair.
	6 0 p. m.	23.98	67	65	23.89	65	56	53	0	0	0	....	Hazy	.....	Cumulus	2-4	0	.....	.....	....	....	Fair.
	7 0 p. m	23.97	65	58	23.88	58	54	78	N.W.	5	.12	....	Hazy	.....	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	8 0 p. m.	23.98	64	54	23.90	54	52	87	N.W.	4	.08	....	Hazy	.....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	9 0 p. m.	23.98	70	53	23.88	53	51	86	N.W.	6	.18	....	0	0	Cumulus	1-4	0	.....	.....	....	....	Fair.
	10 0 p. m.	23.98	62	52	23.90	52	51	93	N.W.	5	.12	....	0	0	Cumulus	1-4	0	.....	.....	....	....	Fair.
	11. 39 p. m.	23.98	63	52	23.90	52	51	93	N.W.	4	.08	....	0	0	0	0	0	.....	.....	....	....	Clear.
	12 0 p. m.	23.97	71	52	23.87	52	51	93	N.W.	4	.08	....	0	0	0	0	0	.....	.....	....	....	Clear.
Knoxville, Tenn.	7 0 a. m.	29.41	72	69	29.285	68	66	90	N. E.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	7. 7 a. m.	29.41	72	69	29.285	68	66	90	E.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	11. 32 a. m.	29.44	80	82	29.294	81	71	57	E.	4	.08	71	0	0	Cumulus	4-4	E.	.....	.....	....	....	Cloudy.
	2 0 p. m.	29.37	81	85	29.222	84	68	40	E.	6	.18	....	0	0	Cir. & cu	2-4	0	.....	.....	....	....	Fair.
	4. 7 p. m.	29.36	82	87	29.210	86	71	44	E.	6	.18	....	0	0	Cu. & cir	3-4	S. E.	.....	.....	....	....	Cloudy.
	9 0 p. m.	29.35	79	75	29.208	74	70	81	S. W.	4	.08	....	Stratus	1-4	0	0	0	.....	.....	....	....	Fair.
	10. 32 p. m.	29.35	78	74	29.211	73	69	81	S. W.	3	.04	....	0	0	0	0	0	.....	.....	....	....	Clear.

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Meteorological record for July 24, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23 97	71	52	23. 87	52	51	93	N. W.	4	.08	....	0	0	0	0	0	.....	.....	....	....	Clear.
	2 0 a. m.	23. 96	70	51	23. 86	51	51	100	N. W.	4	.08	....	0	0	0	0	0	.....	.....	....	....	Clear.
	3 0 a. m.	23. 95	71	51	23. 85	51	51	100	N. W.	4	.08	....	0	0	0	0	0	.....	.....	....	....	Clear.
	4 0 a. m.	23. 96	71	51	23. 86	51	51	100	N. W.	4	.08	....	0	0	Cumulus	1-4	0	.....	.....	....	....	Fair.
	5 0 a. m.	23. 95	69	51	23. 85	51	50	93	N. W.	5	.12	....	Light fog	....	Cumulus	1-4	N. W.	.....	.....	....	....	Fair.
	6 0 a. m.	23. 94	64	52	23. 86	52	52	100	N. W.	5	.12	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23. 94	66	55	23. 85	55	54	93	N. W.	4	.08	....	Light fog	....	Cumulus	1-4	N. W.	.....	.....	....	....	Foggy.
	8 0 a. m.	23. 94	66	53	23. 85	53	51	86	N. W.	7	.24	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	9 0 a. m.	23. 94	66	58	23. 85	58	54	76	N.	6	.18	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	10 0 a. m.	23. 94	66	57	23. 85	57	54	81	N.	4	.08	....	Hazy	....	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	11 0 a. m.	23. 93	66	60	23. 84	60	55	71	E.	4	.08	....	Hazy	....	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	12 0 m...	23. 93	65	60	23. 84	60	57	82	S. W.	2	.02	99	Hazy	....	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	1 0 p. m.	23. 92	65	60	23. 83	60	56	76	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 p. m.	23. 91	67	62	23. 82	62	58	77	0	0	0	....	Hazy	....	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	3 0 p. m.	23. 91	66	63	23. 81	63	58	72	0	0	0	....	Hazy	....	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	4 14 p. m.	23. 90	70	59	23. 80	59	56	71	S. E.	4	.08	....	Hazy	....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	5 0 p. m.	23. 89	68	61	23. 80	61	58	82	S. E.	4	.08	....	Hazy	....	Cumulus	3-4	S. E.	.....	.....	....	....	Cloudy.
	6 0 p. m.	23. 87	67	63	23. 78	63	58	72	S. W.	3	.04	....	Hazy	....	Cumulus	3-4	N.	.....	.....	....	....	Cloudy.
	7 0 p. m.	23. 86	65	57	23. 78	57	55	87	S.	2	.02	....	Hazy	....	Cumulus	3-4	N.	.....	.....	....	....	Cloudy.
	8 0 p. m.	23. 85	64	55	23. 77	55	54	93	S.	2	.02	....	Hazy	....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	9 0 p. m.	23. 86	67	55	23. 77	55	53	87	0	0	0	....	Hazy	....	Cumulus	2-4	0	.....	.....	....	....	Fair.
	10 0 p. m.	23. 87	69	55	23. 77	55	53	87	0	0	0	....	Hazy	....	Cumulus	1-4	0	.....	.....	....	....	Fair.
	10 39 p. m.	23. 87	69	55	23. 77	55	53	87	N. W.	2	.02	....	0	0	0	0	0	.....	.....	....	....	Clear.
	12 0 p. m.	23. 85	65	53	23. 76	53	51	86	N.	4	.08	....	0	0	0	0	0	.....	.....	....	....	Clear.
Knoxville, Tenn.	7 0 a. m.	29. 35	76	70	29. 215	69	68	95	S. W.	3	.04	....	Fog	....	0	0	0	.....	.....	....	....	Foggy.
	7 7 a. m.	29. 35	76	70	29. 215	69	68	95	S. W.	3	.04	....	Fog	....	0	0	0	.....	.....	....	....	Foggy.
	11 32 a. m.	29. 33	82	83	29. 179	82	70	52	E.	8	.32	94	0	0	Cumulus	2-4	E.	.....	.....	....	....	Fair.
	2 0 p. m.	29. 23	83	57	29. 078	86	70	42	E.	6	.18	....	0	0	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	4 7 p. m.	29. 22	85	78	29. 063	87	70	40	E.	3	.04	....	0	0	Cirrus ..	3-4	0	.....	.....	....	....	Cloudy.
	9 0 p. m.	29. 22	79	76	29. 079	75	69	72	S. W.	8	.32	....	Stratus ...	4-4	Hidden ..	....	.....	.....	.....	....	....	Cloudy.
	10 32 p. m.	29. 22	79	75	29. 079	74	69	76	S. W.	4	.08	....	Stratus ...	4-4	Hidden ..	....	.....	.....	.....	....	....	Cloudy.

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Meteorological record for July 25, 1873.

(Hourly observations.)

Place of observation.		Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1	0 a. m.	23.84	64	53	23.76	53	51	86	N. W.	4	.08	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	2	0 a. m.	23.82	65	52	23.73	52	51	93	N.	4	.08	....	0	0	Cumulus	2-4	0	.....	.....	.....	....	Fair.
	3	0 a. m.	23.81	63	51	23.73	51	50	93	N.	4	.08	....	0	0	Cumulus	2-4	0	.....	.....	.....	....	Fair.
	4	0 a. m.	23.80	60	50	23.72	50	50	100	S. W.	8	.32	....	Light fog	....	Cir., cum	2-4	0	.....	.....	.....	....	Fair.
	5	0 a. m.	23.80	58	50	23.72	50	49	93	S. W.	8	.32	....	Hazy	....	Cir. cum	1-4	0	.....	.....	.....	....	Fair.
	6	0 a. m.	23.78	58	50	23.73	50	50	100	S. W	8	.32	....	Light fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7	14 a. m.	23.80	59	52	23.73	52	51	93	S. W.	6	.18	....	Light fog	....	Cumulus	1-4	0	.....	.....	.....	....	Fair.
	8	0 a. m.	23.81	59	55	23.74	55	53	87	S. W.	8	.32	....	Hazy	....	Cumulus	1-4	N.	.....	.....	.....	....	Fair.
	9	0 a. m.	23.82	61	59	23.74	59	57	88	S. W.	6	.18	....	Hazy	....	Cumulus	1-4	N.	.....	.....	.....	....	Fair.
	10	0 a. m.	23.82	62	62	23.74	62	57	72	S. W.	8	.32	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	11	0 a. m.	23.85	65	64	23.76	64	57	62	S. W.	8	.32	....	Hazy	....	Cumulus	3-4	E.	.....	.....	.....	....	Cloudy.
	12	0 m	23.85	66	61	23.76	61	58	82	W.	4	.08	101	Fog	....	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	1	0 p. m.	23.84	65	58	23.75	58	56	88	S. W.	3	.04	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2	0 p. m.	23.83	65	58	23.74	58	56	88	S. W.	2	.02	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3	0 p. m.	23.81	67	56	23.72	56	56	100	S. W.	6	.18	....	Nimbus	4-4	Hidden	....	.....	2.25 p. m.	.....	.11	....	Light rain.
	4	14 p. m.	23.80	66	57	23.71	57	56	94	S.	8	.32	....	Light fog	....	Cumulus	1-4	0	.....	4.01 p. m.	.06	....	Foggy.
	5	0 p. m.	23.80	66	57	23.71	57	56	94	S.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6	0 p. m.	23.79	61	55	23.71	55	55	100	S.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7	0 p. m.	23.79	61	55	23.71	55	54	93	S. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8	0 p. m.	23.80	65	54	23.71	54	53	93	S. W.	16	1.28	....	Fog	....	Hidden	....	.....	7.10 p. m.	7.35 p. m.	.02	....	Foggy.
	9	0 p. m.	23.81	63	55	23.73	55	55	100	S. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10	0 p. m.	23.82	64	55	23.74	55	55	100	S. W.	18	1.62	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10	39 p. m.	23.82	63	55	23.74	55	55	100	S. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	12	0 p. m.	23.82	63	54	23.74	54	54	100	S. W.	20	2.00	....	Nimbus	4.4	Hidden	....	.....	10.50 p. m.	.....	.05	....	Light rain.
Knoxville, Tenn.	7	0 a. m.	29.20	77	72	29.064	71	69	90	S. W.	2	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	7	7 a. m	29.20	77	72	29.064	71	69	90	S. W.	2	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	11	32 a. m.	29.16	81	81	29.014	80	71	61	S.	4	.08	107	0	0	Cu. & cir	2-4	0	.....	.....	.....	....	Fair.
	2	0 p. m.	29.13	81	82	28.984	81	72	62	S.	12	.72	....	Stratus	1-4	Cirrus	2-4	0	.....	.....	.....	....	Cloudy.
	4	7 p. m.	29.13	83	85	28.979	84	72	53	S. W.	12	.72	....	0	0	Cumulus	2-4	S. W.	1.45 p. m.	2.00 p. m.	.01	....	Cloudy.
	9	0 p. m.	29.14	79	76	28.999	75	70	76	S.	6	.18	....	Stratus	2-4	Hazy	....	.....	.....	.....	.....	....	Cloudy.
	10	32 p. m.	29.15	80	75	29.007	74	71	85	0	0	0	....	Stratus	2-4	Hazy	....	.....	.....	.....	.....	....	Cloudy.

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Meteorological record for July 26, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23. 81	64	55	23. 73	55	55	100	S. W.	16	1. 28	....	Fog	....	Hidden	....	.....	.....	12. 18 a. m.	.01	....	Foggy.
	2 0 a. m.	23. 80	64	54	23. 72	54	54	100	S. W.	16	1. 28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23. 80	62	53	23. 72	53	53	100	S. W.	18	1. 62	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23. 80	61	54	23. 72	54	54	100	S. W.	16	1. 28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23. 82	62	53	23. 74	53	53	100	S. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	23. 83	65	54	23. 74	54	54	100	S. W.	15	1. 12	....	Nimbus	4-4	Hidden	....	.....	5. 50 a. m.	.....	.06	....	Light rain.
	7 14 a. m.	23. 83	60	58	23. 75	58	57	94	S.	14	.98	....	Light fog	....	Cumulus	2-4	0	.....	6. 32 a. m.	.05	....	Fair.
	8 0 a. m.	23. 84	62	56	23. 76	56	55	93	S.	12	.72	....	Light fog	....	Cumulus	3-4	S. E.	.....	.....	....	....	Cloudy.
	9 0 a. m.	23. 85	66	59	23. 76	59	58	94	S.	12	.72	....	Light fog	....	Cumulus	3-4	S. E.	.....	.....	....	....	Cloudy.
	10 0 a. m.	23. 85	63	58	23. 77	58	57	94	S.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	11 0 a. m.	23. 85	63	57	23. 76	57	56	94	S. W.	9	.40	....	Fog	....	Hidden	....	.....	10. 40 a. m.	10. 55 a. m.	.03	....	Foggy.
	12 0 m...	23. 84	64	60	23. 76	60	59	94	S. W.	10	.50	230	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	1 0 p. m.	23. 83	63	60	23. 75	60	58	88	S. W.	14	.98	....	Light fog	....	Cir. & cu	3-4	0	12. 15 p. m.	12. 35 p. m.	.01	....	Cloudy.
	2 0 p. m.	23. 84	65	62	23. 75	62	56	77	S. W.	12	.72	....	Hazy	....	Cir. & cu	3-4	S. W.	.....	.....	....	....	Cloudy.
	3 0 p. m.	23. 83	62	58	23. 75	58	56	88	S. W.	16	1. 22	....	Hazy	....	Cir. & cu	3-4	S. W.	.....	.....	....	....	Cloudy.
	4 14 p. m.	23. 82	62	60	23. 74	60	57	82	S. W.	18	1. 62	....	Hazy	....	Cir. & cu	3-4	S. W.	.....	.....	....	....	Cloudy.
	5 0 p. m.	23. 82	64	59	23. 74	59	56	82	S. W.	10	.50	....	Hazy	....	Cir. & cu	3-4	S. W.	.....	.....	....	....	Cloudy.
	6 0 p. m.	23. 85	65	56	23. 76	56	54	87	S. W.	16	1. 28	....	Hazy	....	Cir. & cu	3-4	S. W.	.....	.....	....	....	Cloudy.
	7 0 p. m.	23. 85	62	55	23. 77	55	53	87	S. W.	16	1. 28	....	0	0	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy.
	8 0 p. m.	23. 86	63	55	23. 78	55	53	87	S. W.	8	.32	....	0	0	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy.
	9 0 p. m.	23. 89	64	54	23. 81	54	53	93	S. W.	12	.72	....	Nimbus	4-4	Hidden	....	.....	8. 45 p. m.	.....	.01	....	Light rain.
	10 0 p. m.	24. 57	62	54	23. 79	54	53	93	S. W.	17	1. 44	....	Fog	....	Hidden	....	.....	.....	9. 20 p. m.	.02	....	Foggy.
	10 30 p. m.	23. 86	61	54	23. 78	54	54	100	S. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 p. m.	23. 85	60	54	23. 77	54	54	100	S. W.	26	3. 38	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
Knoxville, Tenn..	7 0 a. m.	29. 19	77	74	29. 054	73	70	85	S.	2	.02	....	0	0	0	0	0	.....	.....	....	....	Clear.
	7 7 a. m.	29. 19	77	74	29. 054	73	70	85	S.	2	.02	....	0	0	0	0	0	.....	.....	....	....	Clear.
	11 32 a. m.	29. 21	81	81	29. 062	80	70	56	S. W.	16	1. 28	152	0	0	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	2 0 p. m.	29. 15	84	86	29. 006	85	71	47	S.	16	1. 28	....	0	0	Cu. & cir	2-4	S. W.	.....	.....	....	....	Fair.
	4 7 p. m.	29. 15	85	86	29. 004	87	73	45	S.	12	.72	....	0	0	Cumulus	1-4	S. W.	.....	.....	....	....	Fair.
	9 0 p. m.	29. 22	78	73	29. 072	72	69	83	N. E.	8	.32	....	Stratus	2-4	0	0	0	.....	.....	....	....	Clearing.
	10 30 p. m.	29. 25	77	73	29. 063	72	67	78	E.	3	.04	....	Stratus	1-4	0	0	0	.....	.....	....	....	Fair.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from —)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.84	59	53	23.77	53	53	100	S.W.	22	2.42	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23.84	60	54	23.76	54	54	100	S.W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.83	59	54	23.76	54	54	100	S.W.	18	1.62	....	Light fog	....	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	4 0 a. m.	23.84	59	54	23.77	54	54	100	S.W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23.85	60	55	23.77	55	55	100	S.W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	23.87	60	56	23.79	56	56	100	S.W.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23.87	61	58	23.80	58	55	93	S.W.	6	.18	....	Light fog	....	Cumulus	3-4	0	.....	.....	....	....	Fair.
	8 0 a. m.	23.90	66	59	23.81	59	57	88	S.W.	3	.04	....	Light fog	....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	9 0 a. m.	23.91	61	60	23.83	60	57	82	S.W.	3	.04	....	Fog	....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	10 0 a. m.	23.91	62	60	23.83	60	57	82	S.W.	8	.32	....	Light fog	....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
	11 0 a. m.	23.90	62	59	23.82	59	58	94	S.W.	7	.24	....	Nimbus ..	1-4	Cumulus	2-4	W.	10.30 a. m.	.....	.19	....	Light rain.
	12 0 m ..	23.87	64	60	23.80	60	59	94	S.W.	8	.32	312	Nimbus...	4-4	Hidden	....	.....	.....	.....	.06	....	Light rain.
	1 0 p. m.	23.87	62	59	23.79	59	58	94	S.W.	8	.32	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.04	....	Light rain; thunderstorm from N. to S.
	2 0 p. m.	23.86	63	58	23.78	58	57	94	S.W.	10	.50	....	Fog	....	Hidden	....	.....	.....	1.20 p. m.	.11	....	Foggy.
	3 0 p. m.	23.87	63	59	23.79	59	58	94	S.W.	7	.24	....	Nimbus...	4-4	Hidden	....	.....	2.55 p. m.	.....	.07	....	Heavy rain.
	4 14 p. m.	23.85	62	61	23.77	61	59	88	S.W.	12	.72	....	Hazy	....	Cumulus	3-4	S. W.	.....	3.18 p. m.	.02	....	Cloudy.
	5 0 p. m	23.86	61	58	23.78	58	57	94	S.W.	8	.32	....	Light fog	....	Cumulus	4-4	S. W.	.....	.....	....	....	Cloudy.
	6 0 p. m	23.86	60	57	23.78	57	56	94	S.W.	10	.50	....	Light fog	....	Cumulus	4-4	S. W.	.....	.....	....	....	Cloudy.
	7 0 p. m	23.86	60	55	23.78	55	54	93	S.W.	8	.32	....	Nimbus...	4-4	Hidden	....	.....	6.20 p. m.	.....	.47	....	Heavy rain; thunderstorm.
	8 0 p. m	23.85	60	56	23.77	56	56	100	S.W.	12	.72	....	Fog	....	Hidden	....	.....	.....	7.25 p. m.	.11	....	Foggy.
	9 0 p. m.	23.86	60	56	23.78	56	56	100	S.W.	13	.84	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 p. m.	23.87	59	56	23.80	56	56	100	S.W.	6	.18	....	Nimbus...	4-4	Hidden	....	.....	9.40 p. m.	.....	.03	....	Light rain.
	10 39 p. m	23.86	59	55	23.79	55	55	100	S.W.	12	.72	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.10	....	Light rain.
	12 0 p. m.	23.85	58	54	23.78	54	54	100	S.	12	.72	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.38	....	Heavy rain; thunderstorm.
Knoxville, Tenn .	7 0 a. m	29.26	76	71	29.127	70	68	90	E.	6	.18	....	Stratus ...	1-4	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy.
	7 7 a. m	29.26	76	71	29.127	70	68	90	E.	6	.18	....	Stratus ...	1-4	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy.
	11 32 a. m	29.24	81	81	29.095	80	73	70	S.	6	.18	152	0	0	Cumulus	2-4	S.	9.40 a. m.	10.40 a. m.	....	....	Clearing.
	2 0 p. m	29.20	83	85	29.044	84	73	57	S.W.	6	.18	....	Stratus ...	2-4	Cumulus	2-4	0	.....	.....	....	....	Threatening.
	4 7 p. m	29.19	82	77	29.044	76	68	64	S. E.	6	.18	....	Stratus ...	4-4	Hidden	....	.....	3.00 p. m.	4 00 p. m.	.37	....	Threatening.
	9 0 p. m.	29.21	77	73	29.073	72	70	90	S.W.	2	.02	....	Stratus ...	4-4	Hidden	....	.....	4.50 p. m.	5.20 p. m.	....	....	Cloudy.
	10 32 p. m	29.21	77	72	29.073	71	70	93	S.W.	6	.18	....	Nimbus...	4-4	Hidden	....	.....	10.30 p. m.	12.00 p. m.	1.20	....	Light rain.

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Meteorological record for July 28, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N.C.	1 0 a. m.	23.85	58	54	23.78	54	54	100	S.	8	.32	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.42	....	Heavy rain.
	2 0 a. m.	23.84	58	54	23.77	54	54	100	S. W.	18	1.62	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.06	....	Light rain.
	3 0 a. m.	23.83	58	53	23.76	53	53	100	S. W.	20	2.00	....	Fog.....	....	Hidden	....	.....	.....	2.10 a. m.	.02	....	Foggy.
	4 0 a. m.	23.81	58	52	23.74	52	52	100	S. W.	16	1.28	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 a. m.	23.80	58	52	23.73	52	52	100	S. W.	14	.98	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 a. m.	23.81	58	52	23.74	52	52	100	S. W.	18	1.62	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	23.82	59	53	23.75	53	52	93	S. W.	23	2.64	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 a. m.	23.83	59	55	23.76	55	53	87	S. W.	18	1.62	....	Light fog	....	Cumulus	3-4	W.	.....	.....	.....	....	Cloudy.
	9 0 a. m.	23.85	60	59	23.77	59	55	76	S. W.	9	.40	....	Hazy	....	Cumulus	2-4	W.	.....	.....	.....	....	Fair.
	10 0 a. m.	23.87	62	61	23.79	61	58	82	W.	8	.32	....	Hazy	....	Cumulus	3-4	S. W.	.....	.....	.....	....	Cloudy.
	11 0 a. m.	23.86	62	64	23.80	64	61	83	W.	4	.08	....	Hazy	....	Cumulus	3-4	W.	.....	.....	.....	....	Cloudy.
	12 0 m...	23.87	62	62	23.79	62	58	77	W.	6	.18	289	Hazy	....	Cumulus	3-4	S. W.	.....	.....	.....	....	Cloudy.
	1 0 p. m.	23.86	64	64	23.78	64	58	67	N. W.	7	.24	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	.....	....	Cloudy.
	2 0 p. m.	23.83	65	68	23.74	68	63	74	W.	5	.12	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	3 0 p. m.	23.83	67	68	23.74	68	62	70	S. W.	4	.08	....	Hazy	....	Cumulus	3-4	W.	.....	.....	.....	....	Cloudy.
	4 14 p. m.	23.82	65	60	23.73	60	59	94	S. W.	5	.12	....	Nimbus...	4-4	Hidden	....	.....	3.39 p. m.	.....	.21	....	Heavy rain; thunder-st'm fr. S.E. to N.W.
	5 0 p. m.	23.84	61	56	23.76	56	55	93	S. W.	8	.32	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.52	....	Heavy rain; thunder-st'm fr. S.E. to N.W.
	6 0 p. m.	23.84	61	57	23.76	57	56	94	S. W.	12	.72	....	Fog.....	....	Hidden	....	.....	.....	5.32 p. m.	.26	....	Foggy.
	7 0 p. m.	23.82	61	56	23.74	56	56	100	S. W.	20	2.00	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 a. m.	23.84	64	56	23.76	56	56	100	S. W.	16	1.28	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.83	63	56	23.75	56	56	100	S. W.	18	1.62	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 a. m.	23.82	60	54	23.74	54	54	100	S. W.	20	2.00	....	Fog.....	....	Cumulus	2-4	S. W.	.....	.....	.....	....	Foggy.
	10 39 p. m.	23.81	60	53	23.73	53	53	100	S. W	18	1.62	....	Fog.....	....	0	0	0	.....	.....	.....	....	Foggy.
	12 0 p. m.	23.80	60	53	23.72	53	53	100	S. W.	22	2.42	....	Fog.....	....	0	0	0	.....	.....	.....	57.1	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.23	77	72	29.094	71	69	90	W.	5	.12	....	Stratus ...	3-4	Cirrus ..	1-4	0	.....	.....	.....	....	Clearing.
	7 7 a. m.	29.23	77	72	29.094	71	69	90	W.	5	.12	....	Stratus ...	3-4	Cirrus ..	1-4	0	.....	.....	.18	....	Clearing.
	11 33 a. m.	29.25	81	80	29.103	70	72	69	S. W.	8	.32	118	0	0	Cumulus	3-4	W.	.....	.....	.....	....	Cloudy.
	2 0 p. m.	29.16	82	84	29.011	73	73	60	N.	12	.72	....	Hazy	....	Cirrus ..	2-4	S. W.	.....	.....	.....	....	Fair.
	4 7 p. m.	29.16	73	74	29.009	73	72	76	W.	17	1.44	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Threatening.
	9 0 p. m.	29.26	72	73	29.099	72	70	100	0	0	0	....	Stratus ...	2-4	Hazy ..	....	.....	5.45 p. m.	.....	.....	....	Cloudy.
	10 32 p. m.	29.19	78	74	29.051	71	69	90	S. W.	4	.08	....	Stratus ...	4-4	Hidden	....	.....	.....	6.00 p. m.	.02	....	Threatening.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.79	58	52	23.72	52	51	93	S. W.	24	2.88	....	Light fog	....	Cirrus ..	2-4	.....	.....	.....	....	....	Fair.
	2 0 a. m.	23.79	58	52	23.72	52	51	93	W.	16	1.28	....	0	0	Cirrus ..	2-4	.....	.....	.....	....	....	Fair.
	3 0 a. m.	23.79	59	51	23.72	51	50	93	N. W.	12	.72	....	0	0	Cirrus ..	1-4	.....	.....	.....	...	....	Fair.
	4 0 a. m.	23.80	58	51	23.73	51	50	93	N. W.	10	.50	....	0	0	Cir. & cu.	2-4	N. W.	.....	.....	....	....	Fair.
	5 0 a. m.	23.80	57	52	23.73	52	51	93	N. W.	12	.72	....	Light fog	....	Cirrus ..	2-4	N. W.	.....	.....	....	....	Fair.
	6 0 a. m.	23.81	58	53	23.74	53	52	93	N. W.	12	.72	....	0	0	Cirrus ..	2-4	N. W.	.....	.....	....	....	Fair.
	7 14 a. m.	23.82	60	55	23.74	55	53	87	N. W.	4	.08	....	Hazy	....	Cir. & cu.	2-4	N. W.	.....	.....	....	....	Fair.
	8 0 a. m.	23.84	62	57	23.76	57	55	87	N. W.	7	.24	....	Hazy	....	Cir. & cu.	2-4	N. W.	.....	.....	....	....	Fair.
	9 0 a. m.	23.84	64	59	23.76	59	57	88	N. W.	4	.08	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	10 0 a. m.	23.85	63	59	23.77	59	57	88	N. W.	4	.08	....	Light fog	....	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	11 0 a. m.	23.85	62	60	23.77	60	58	88	W.	4	.08	..	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 m.	23.85	62	60	23.77	60	58	88	W.	5	.12	269	Light fog	....	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.
	1 0 p. m.	23.85	67	63	23.76	63	59	78	N. W.	6	.18	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	2 0 p. m.	23.84	67	64	23.75	64	59	73	N. W.	4	.08	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	3 0 p. m.	23.82	66	63	23.73	63	60	83	N. W.	4	.08	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	....	...	Cloudy.
	4 14 p. m.	23.81	63	60	23.73	60	58	88	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 p. m.	23.82	62	57	23.74	57	56	94	N. W.	8	.32	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	6 0 p. m.	23.81	62	56	23.73	56	55	94	N. W.	9	.40	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	7 0 p. m.	23.83	60	56	23.75	56	55	94	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 p. m.	23.84	64	54	23.76	54	51	80	N. W.	8	.32	....	0	0	Cir. & cu.	2-4	.....	.....	.....	....	....	Fair.
	9 0 p. m.	23.85	65	55	23.76	55	51	74	N. W.	2	.02	....	0	0	Cirrus ..	1-4	.....	.....	.....	....	....	Fair.
	10 0 p. m.	23.85	64	52	23.77	52	49	79	N. W.	4	.08	....	0	0	Cirrus ..	1-4	.....	.....	.....	....	....	Fair.
	10 39 p. m.	23.84	63	53	23.76	53	50	80	N. W.	4	.08	....	0	0	Cirrus ..	1-4	.....	.....	.....	....	....	Fair.
	12 0 p. m.	23.83	63	53	23.75	53	51	86	N. W.	4	.08	....	0	0	Cirrus ..	2-4	.....	.....	.....	....	56.1	Fair.
Knoxville, Tenn.	7 0 a. m.	29.24	76	72	29.107	71	69	90	S. W.	8	.32	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	7 7 a. m.	29.24	76	72	29.107	71	69	90	S. W.	8	.32	..	Stratus ...	4-4	Hidden	...	.....	In night.	In night.	.01	...	Cloudy.
	11 33 a. m.	29.24	80	81	29.095	80	73	79	S.	8	.32	151	0	0	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	2 0 p. m.	29.17	82	84	29.021	83	72	56	S. W.	8	.32	....	0	0	Cirrus ..	2-4	W.	.....	.....	....	....	Fair.
	4 7 p. m.	29.15	84	86	28.996	85	75	61	S.	8	.32	....	0	0	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	9 0 p. m.	29.19	80	77	29.047	76	72	81	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear.
	10 32 p. m.	29.20	81	75	29.053	74	71	88	0	0	0	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.

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Meteorological record for July 30, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.82	61	53	23.74	53	51	86	N. W.	4	.08	....	0	0	Cirrus ..	1-4	.....	.....	.....	.....	.....	Fair.
	2 0 a. m.	23.82	63	54	23.74	54	53	93	N. W.	8	.32	....	Fog	.....	Hidden ..	....	.....	.....	.....	.....	.....	Foggy.
	3 0 a. m.	23.81	61	54	23.73	54	54	100	N. W.	16	1.28	....	Fog	.....	Hidden ..	....	.....	.....	.....	.....	.....	Foggy.
	4 0 a. m.	23.81	60	54	23.73	54	54	100	N. W.	12	.72	....	Fog	.....	Hidden ..	....	.....	.....	.....	.....	.....	Foggy.
	5 0 a. m.	23.83	60	54	23.75	54	54	100	N. W.	12	.72	....	Fog	.....	0	0	0	.....	.....	.....	.....	Foggy.
	6 0 a. m.	23.84	62	55	23.75	55	55	100	N. W.	8	.32	....	Light fog	.....	Cirrus ..	1-4	.....	.....	.....	.....	.....	Fair.
	7 14 a. m.	23.85	64	55	23.77	55	54	93	N. W.	4	.08	....	Hazy.....	.....	Cir. & cu	2-4	.....	.....	.....	.....	.....	Fair.
	8 0 a. m.	23.86	64	57	23.78	57	55	87	W.	2	.02	....	Light fog	.....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	9 0 a. m.	23.87	65	57	23.78	57	55	87	S. W.	1	.01	....	Hazy.....	.....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	10 0 a. m.	23.88	66	59	23.79	59	58	94	S.	2	.02	....	Light fog	.....	Cumulus	2-4	N. W.	.....	.....	.....	.....	Cloudy.
	11 0 a. m.	23.89	66	60	23.80	60	58	88	S. E.	4	.08	....	Fog	.....	Hidden ..	....	.....	.....	.....	.....	.....	Foggy.
	12 0 m...	23.89	67	57	23.80	57	56	94	E.	2	.02	153	Nimbus	4-4	Hidden ..	....	.....	11.35 a. m.	.....	.12	....	Light rain; distant thunder-storm in W.
	1 0 p. m.	23.88	65	62	23.79	62	60	88	S. E.	2	.02	....	Fog	.....	Hidden ..	....	.....	.....	12.40 p. m.	.14	....	Foggy.
	2 0 p. m.	23.87	64	60	23.79	61	60	94	S. W.	8	.32	....	Fog	.....	Hidden ..	....	.....	1.20 p. m.	1.45 p. m.	.04	....	Foggy.
	3 0 p. m.	23.86	64	63	23.78	63	62	94	S. W.	2	.02	....	Light fog	.....	Cumulus	3-4	0	.....	.....	.....	.....	Cloudy.
	4 14 p. m.	23.85	62	60	23.77	60	59	94	S. E	6	.18	....	Fog	.....	Hidden ..	....	.....	3.30 p. m.	3.45 p. m.	.01	....	Foggy.
	5 0 p. m.	23.84	63	62	23.76	62	60	88	S. W.	8	.32	....	Fog	.....	Cumulus	1-4	.....	.....	.....	.....	.....	Foggy.
	6 0 p. m.	23.85	64	59	23.77	59	57	87	S.	14	.98	....	Hazy.....	.....	Cir. & cu	2-4	.....	.....	.....	.....	.....	Fair.
	7 0 p. m.	23.86	62	56	23.78	56	55	94	S. E.	12	.72	....	Light fog	.....	Cir. & cu	3-4	S. E.	.....	.....	.....	.....	Cloudy.
	8 0 p. m.	23.87	65	57	23.78	57	57	100	S. W.	16	1.28	....	Fog	.....	Hidden ..	....	.....	.....	.....	.....	.....	Foggy.
	9 0 p. m.	23.89	67	57	23.80	57	56.5	97	S. W.	9	.40	....	Fog	.....	Hidden ..	....	.....	.....	.....	.....	.....	Foggy.
	10 0 p. m.	23.88	64	56	23.80	56	56	100	S. W.	22	2.42	....	Light fog	.....	Cir. & cu	2-4	S. W.	.....	.....	.....	.....	Cloudy.
	10 39 p. m.	23.87	63	56	23.79	56	55	94	S. W.	18	1.62	....	0	0	Cirrus ..	3-4	.....	.....	.....	.....	.....	Cloudy.
	12 0 p. m.	23.86	62	55	23.78	55	53	87	S. W.	14	.98	....	0	0	Cirrus ..	1-4	.....	.....	.....	.....	57.2	Fair.
Knoxville, Tenn.	7 0 a. m.	29.24	77	72	29.094	71	70	90	S.	2	.02	....	Stratus..	3-4	Hidden ..	....	.....	.....	.....	.....	.....	Foggy.
	7 7 a. m.	29.23	77	72	29.094	71	70	90	S.	2	.02	....	Stratus..	3-4	Hidden ..	....	.....	.....	.....	.....	.....	Foggy.
	11 33 a. m.	29.25	82	83	29.101	82	73	63	S. W.	6	.18	89	0	0	Cumulus	2-4	S.	.....	.....	.....	.....	Fair.
	2 0 p. m.	29.20	85	87	29.043	75	75	57	S. W.	6	.18	....	0	0	Cumulus	2-4	S.	.....	.....	.....	.....	Fair.
	4 7 p. m.	29.18	85	85	29.034	84	74	60	S.	9	.40	....	0	0	Cir. & cu	3-4	0	.....	.....	.....	.....	Cloudy.
	9 0 p. m.	29.19	81	77	29.043	76	72	79	S. W.	4	.08	....	0	0	Cirrus ..	3-4	0	.....	.....	.....	.....	Fair.
	10 39 p. m.	29.20	81	77	29.053	76	74	77	S. W.	3	.04	....	Stratus..	2-4	0	0	0	.....	.....	.....	.....	Fair.

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Meteorological record for July 31, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.87	61	54	23.79	54	52	87	S. W.	10	.50	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	2 0 a. m.	23.86	62	53	23.78	53	52	93	S. W.	12	.72	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	3 0 a. m.	23.86	60	51	23.78	53	52	93	S. W.	8	.32	....	0	0	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	4 0 a. m.	23.87	61	53	23.79	53	52	93	S. W.	10	.50	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	5 0 a. m.	23.89	61	54	23.81	54	53	93	S. W.	12	.72	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	6 0 a. m.	23.87	61	59	23.79	59	56	82	S.	8	.32	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	7 14 a. m.	23.78	63	63	23.80	63	59	78	S. W.	4	.08	....	Hazy	....	Cir. & cu.	1-4	S.	.....	.....	.....	....	Fair.
	8 0 a. m.	23.89	66	66	23.80	66	62	79	S.	3	.04	....	Hazy	....	Cumulus	2-4	S. W.	.....	.....	.....	....	Fair.
	9 0 a. m.	23.90	67	63	23.81	63	60	83	S.	4	.08	....	Hazy	....	Cumulus	3-4	S. W.	.....	.....	.....	....	Cloudy.
	10 0 a. m.	23.90	67	64	23.81	64	61	83	S.	3	.04	....	Hazy	....	Cumulus	4-4	E.	.....	.....	.....	....	Cloudy.
	11 0 a. m.	23.89	64	60	23.81	60	59	94	S. W.	5	.12	....	Fog.....	....	Hidden .	....	.....	.....	.....	.....	....	Foggy.
	12 0 m ..	23.89	66	61	23.80	61	59	88	S.	4	.08	199	Fog.....	....	Hidden .	....	.....	.....	.....	.....	....	Foggy.
	1 0 p. m.	23.87	65	65	23.78	65	62	82	S.	2	.02	....	Fog	....	Hidden .	....	.....	.....	.....	.....	....	Foggy.
	2 0 p. m.	23.87	66	61	23.78	61	60	94	S. E.	2	.02	....	Nimbus...	4-4	Hidden .	....	.....	1.15 p. m.	.....	.13	....	Light rain.
	3 0 p. m.	23.86	65	59	23.78	59	58	94	S.	4	.08	....	Light fog .	....	Cumulus	4-4	S. E.	.....	2.55 p. m.	.14	....	Cloudy.
	4 14 p. m.	23.85	62	61	23.77	61	60	94	S.	6	.18	....	Hazy	....	Cumulus	3-4	S. E.	.....	.....	.....	....	Cloudy.
	5 6 p. m.	23.86	63	61	23.78	61	59	88	S. W.	4	.08	....	Hazy	....	Cumulus	3-4	S. E.	.....	.....	.....	....	Cloudy.
	6 0 p. m	23.87	66	59	23.74	59	58	94	S. W.	4	.08	....	Fog.....	....	Hidden .	....	.....	.....	.....	.....	....	Foggy.
	7 0 p. m.	23.86	62	56	23.78	56	55	94	N. W.	8	.32	....	0	0	Cir. & cu.	3-4	N. W.	.....	.....	.....	....	Cloudy.
	8 0 p. m	23.86	64	54	23.78	54	53	93	N. W.	8	.32	....	0	0	Cir.-cum	2-4	0	.....	.....	.....	....	Fair.
	9 0 p. m.	23.87	63	55	23.79	55	54	93	N. W.	16	1.28	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	10 0 p. m.	23.87	64	56	23.79	56	56	100	N. W.	18	1.62	....	Fog.....	....	Hidden .	....	.....	.....	.....	.....	....	Foggy.
	10 39 p. m.	23.86	63	56	23.78	56	56	100	N. W.	16	1.28	....	Fog.....	....	Hidden .	....	.....	.....	.....	.....	....	Foggy.
	12 0 p. m.	23.85	63	54	23.77	54	54	100	N. W.	18	1.62	....	Fog.....	....	Hidden .	....	.....	.....	.....	.....	....	Foggy.
Knoxville, Tenn.	7 0 a. m.	29.24	77	73	29.104	72	69	85	S. W.	3	.04	....	0	0	Cir.-cum	4-4	W.	.....	.....	.....	....	Cloudy.
	7 7 a. m.	29.24	77	73	29.104	72	69	85	S. W.	3	.04	....	0	0	Cir.-cum	4-4	W.	.....	.....	.....	....	Cloudy.
	11 33 a. m.	29.26	81	77	29.113	76	73	86	S. W.	12	.72	147	0	0	Cumulus	2-4	W.	10.50 a. m.	11.05 a. m.	.....	....	Clearing.
	2 0 p. m.	29.2	83	83	29.048	82	71	56	S. W.	12	.72	....	0	0	Cu. & cir.	1-4	S. W.	11.30 a. m.	11.40 a. m.	.....	....	Fair.
	4 7 p. m.	29.19	83	86	29.039	85	73	53	S.	8	.32	....	0	0	Cumulus	1-4	W.	.....	.....	.31	....	Fair.
	9 0 p. m.	29.23	80	78	29.087	77	71	72	S. W.	10	.50	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	10 32 p. m.	29.23	75	76	29.082	79	70	79	S. W.	8	.32	....	0	0	0	0	0	.....	.....	.....	....	Clear.

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I.—*Meteorological record for August* 1, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23. 83	63	54	23. 75	54	54	100	N. W.	20	2. 00	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23. 82	62	55	23. 74	55	55	100	N. W.	20	2. 00	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23. 82	62	53	23. 74	53	53	100	N. W.	16	1. 28	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23. 82	62	54	23. 74	54	54	100	N. W.	16	1. 28	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23. 84	61	54	23. 76	54	54	100	N. W.	20	2. 00	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m	23. 85	62	54	23. 77	54	54	100	N. W.	22	2. 42	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23. 86	62	55	23. 78	55	55	100	N. W.	19	1. 80	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 a. m.	23. 87	62	55	23. 79	55	55	100	N. W.	18	1. 62	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 a. m.	23. 88	61	58	23. 80	58	58	100	N. W.	8	.32	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 a. m	23. 88	62	62	23. 80	62	61	94	W.	8	.32	....	Hazy	.....	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.
	11 0 a. m.	23. 89	63	61	23. 81	61	60	94	W.	5	.12	....	Hazy	.....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
	12 0 m ..	23. 88	62	63	23. 80	63	60	83	W.	8	.32	229	Hazy	.....	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.
Base of Mount Mitchell, N. C.*	1 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	.....	.....	.....	.....	....	.....	.....	.....	....	....	
	2 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	.....	.....	.....	.....	....	.....	.....	.....	....	....	
	3 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	.....	.....	.....	.....	....	.....	.....	.....	....	....	
	4 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	.....	.....	.....	.....	....	.....	.....	.....	....	....	
	5 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	.....	.....	.....	.....	....	.....	.....	.....	....	....	
	6 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	.....	.....	.....	.....	....	.....	.....	.....	....	....	
	7 14 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	.....	.....	.....	.....	....	.....	.....	.....	....	....	
	8 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	.....	.....	.....	.....	....	.....	.....	.....	....	....	
	9 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	.....	.....	.....	.....	....	.....	.....	.....	....	....	
	10 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	.....	.....	.....	.....	....	.....	.....	.....	....	....	
	11 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	.....	.....	.....	.....	....	.....	.....	.....	....	....	
	12 0 m ..	.....	....	....	.....	....	....	....	.....	....	.....	.....	.....	.....	.....	....	.....	.....	.....	....	....	
Knoxville, Tenn.	7 0 a. m.	29. 26	77	73	29. 123	72	60	65	S. W.	3	.04	....	0	0	Cirrus	1-4	W.	.....	.....	....	....	Fair.
	7 7 a. m.	29. 26	77	73	29. 123	72	60	65	S. W.	3	.04	....	0	0	Cirrus	1-4	W.	.....	.....	....	....	Fair.
	11 32 a. m.	29. 28	81	81	29. 133	80	71	61	S W.	12	.72	187	0	0	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.

* No observations taken until August 6.

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Meteorological record for August 1, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.89	63	64	23.81	64	60	78	N. W.	8	.32	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	2 0 p. m.	23.89	67	64	23.80	64	60	78	N. W.	5	.12	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	3 0 p. m.	23.88	66	65	23.79	65	61	78	N. W.	2	.02	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	4 14 p. m.	23.87	64	60	23.79	60	58	88	W.	8	.32	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	...	....	Cloudy.
	5 0 p. m.	23.87	64	60	23.79	60	58	88	N. W.	4	.08	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	6 0 p. m.	23.87	65	60	23.78	60	59	94	N. W.	4	.08	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	7 0 p. m.	23.84	61	57	23.76	57	55	87	W.	4	.08	....	Hazy	....	Cumulus	2-4	0	.....	.....	....	....	Fair.
	8 0 p. m.	23.85	64	56	23.77	56	55	94	N. W.	14	.98	....	0	0	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	9 0 p. m.	23.86	67	55	23.77	55	54	93	N. W.	16	1.28	....	0	0	Cumulus	2-4	0	.....	.....	....	....	Fair.
	10 0 p. m.	23.85	64	55	23.77	55	54	93	N. W.	14	.98	....	Light fog	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	10 39 p. m.	23.84	64	55	23.76	55	54	93	N. W.	12	.72	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	12 0 p. m.	23.84	64	55	23.76	55	55	100	N. W.	12	.72	....	Light fog	....	Cir.& cu.	3-4	0	.....	.....	....	....	Foggy.
Base of Mount Mitchell, N. C. *	1 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	2 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	3 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	4 14 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	5 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	6 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	7 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	8 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	9 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	10 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	10 39 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	12 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
Knoxville, Tenn.	2 0 p. m.	29.23	78	74	29.091	73	69	81	N. W.	20	2.00	....	Nimbus...	3-4	0	0	0	.....	.....	....	....	Cloudy.
	4 7 p. m.	29.23	74	75	29.092	74	72	88	S.	8	.32	....	Stratus ...	4-4	Hidden	....	.....	2 15 p. m.	2 45 p. m.	.03	....	Cloudy.
	9 0 p. m.	29.21	76	73	29.077	72	69	85	S. W.	5	.12	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	10 32 p. m	29.18	76	71	29.046	70	68	90	S. W.	5	.12	....	Cum.-strat	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.

* No observations taken until August 6.

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I.—*Meteorological record for August* 1, 1873.

(Hourly observations.)

Place of observation.		Time of observation.	Barometer.	THERM.		Corrected barometer.	HYGROM.		Relative humidity.	WIND.				LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
				Attached.	Exposed.		Dry bulb.	Wet bulb.		Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from—)	Commenced.	Ended.			
Summit of Mount Mitchell, N. C.	1	0 a. m.	23.83	63	54	23.75	54	54	100	N. W.	20	2.00	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2	0 a. m.	23.82	62	55	23.74	55	55	100	N. W.	20	2.00	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3	0 a. m.	23.82	62	53	23.74	53	53	100	N. W.	16	1.28	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4	0 a. m.	23.82	62	54	23.74	54	54	100	N. W.	16	1.28	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5	0 a. m.	23.84	61	54	23.76	54	54	100	N. W.	20	2.00	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6	0 a. m	23.85	62	54	23.77	54	54	100	N. W.	22	2.42	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7	14 a. m.	23.86	62	55	23.78	55	55	100	N. W.	10	1.80	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8	0 a. m.	23.87	62	55	23.79	55	55	100	N. W.	18	1.62	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9	0 a. m.	23.88	61	58	23.80	58	58	100	N. W.	8	.32	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10	0 a. m	23.88	62	62	23.80	62	61	94	W.	8	.32	....	Hazy	.....	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.
	11	0 a. m.	23.89	63	61	23.81	61	60	94	W.	5	.12	....	Hazy	.....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
	12	0 m . .	23.88	62	63	23.80	63	60	83	W.	8	.32	229	Hazy	.....	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.
Base of Mount Mitchell, N. C.*	1	0 a. m.	.....	...	...	.....	...	...	....	.....	...	.....	....	.....	.....	.....	.....	.....	.....	.....	....	....	
	2	0 a. m.	.....	...	...	.....	...	...	....	.....	...	.....	....	.....	.....	.....	.....	.....	.....	.....	....	....	
	3	0 a. m.	.....	...	...	.....	...	...	....	.....	...	.....	....	.....	.....	.....	.....	.....	.....	.....	....	....	
	4	0 a. m.	.....	...	...	.....	...	...	....	.....	...	.....	....	.....	.....	.....	.....	.....	.....	.....	....	....	
	5	0 a. m.	.....	...	...	.....	...	...	....	.....	...	.....	....	.....	.....	.....	.....	.....	.....	.....	....	....	
	6	0 a. m.	.....	...	...	.....	...	...	....	.....	...	.....	....	.....	.....	.....	.....	.....	.....	.....	....	....	
	7	14 a. m.	.....	...	...	.....	...	...	....	.....	...	.....	....	.....	.....	.....	.....	.....	.....	.....	....	....	
	8	0 a. m.	.....	...	...	.....	...	...	....	.....	...	.....	....	.....	.....	.....	.....	.....	.....	.....	....	....	
	9	0 a. m.	.....	...	...	.....	...	...	....	.....	...	.....	....	.....	.....	.....	.....	.....	.....	.....	....	....	
	10	0 a. m.	.....	...	...	.....	...	...	....	.....	...	.....	....	.....	.....	.....	.....	.....	.....	.....	....	....	
	11	0 a. m.	.....	...	...	.....	...	...	....	.....	...	.....	....	.....	.....	.....	.....	.....	.....	.....	....	....	
	12	0 m .	.....	...	...	.....	...	...	....	.....	...	.....	....	.....	.....	.....	.....	.....	.....	.....	....	....	
Knoxville, Tenn.	7	0 a. m.	29.26	77	73	29.123	72	69	85	S. W.	3	.04	....	0	0	Cirrus	1-4	W.	.....	.....	....	....	Fair.
	7	7 a. m.	29.26	77	73	29.123	72	69	85	S. W.	3	.04	....	0	0	Cirrus	1-4	W.	.....	.....	....	....	Fair.
	11	32 a. m.	29.28	81	81	29.133	80	71	61	S W.	12	.72	187	0	0	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.

* No observations taken until August 6.

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Meteorological record for August 1, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.89	63	64	23.81	64	60	78	N. W.	8	.32	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	2 0 p. m.	23.89	67	64	23.80	64	60	78	N. W.	5	.12	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	3 0 p. m.	23.86	66	65	23.79	65	61	78	N. W.	2	.02	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	4 14 p. m.	23.87	64	60	23.79	60	58	88	W.	8	.32	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	5 0 p. m.	23.87	64	60	23.79	60	58	88	N. W.	4	.08	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	6 0 p. m.	23.87	65	60	23.78	60	59	94	N. W.	4	.08	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	7 0 p. m.	23.84	61	57	23.76	57	55	87	W.	4	.08	....	Hazy	....	Cumulus	2-4	0	.....	.....	....	....	Fair.
	8 0 p. m.	23.85	64	56	23.77	56	55	94	N. W.	14	.98	....	0	0	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	9 0 p. m.	23.86	67	55	23.77	55	54	93	N. W.	16	1.28	....	0	0	Cumulus	2-4	0	.....	.....	....	....	Fair.
	10 0 p. m.	23.85	64	55	23.77	55	54	93	N. W.	14	.98	....	Light fog	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	10 39 p. m.	23.84	64	55	23.76	55	54	93	N. W.	12	.72	....	0	0	Cirrus	1-4	0	.....	.....	....	....	Fair.
	12 0 p. m.	23.84	64	55	23.76	55	55	100	N. W.	12	.72	....	Light fog	....	Cir. & cu.	3-4	0	.....	.....	....	....	Foggy.
Base of Mount Mitchell, N. C.*	1 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	2 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	3 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	4 14 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	5 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	6 0 p. m.	.....	..	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	7 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	8 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	9 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	10 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	10 39 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	12 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
Knoxville, Tenn.	2 0 p. m.	29.23	78	74	29.091	73	69	81	N. W.	20	2.00	....	Nimbus	3-4	0	0	0	.....	.....	....	....	Cloudy.
	4 7 p. m.	29.23	74	75	29.092	74	72	88	S.	8	.32	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	9 0 p. m.	29.21	76	73	29.077	72	69	85	S. W.	5	.12	....	Stratus	4-4	Hidden	....	.....	2 15 p. m.	2 45 p. m.	.03	....	Cloudy.
	10 32 p. m	29.18	76	71	29.046	70	68	90	S. W.	5	.12	....	Cum.-strat	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.

* No observations taken until August 6.

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Meteorological record for August 2, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from —)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.83	62	54	23.75	54	53	93	N. W.	12	.72	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	2 0 a. m.	23.82	61	54	23.74	54	53	93	N. W.	10	.50	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	3 0 a. m.	23.81	60	54	23.74	54	54	100	N. W.	8	.32	....	Light fog	....	Cir.&cu.	3-4	0	.....	.....	.....	.....	Cloudy.
	4 0 a. m.	23.82	60	54	23.75	54	54	100	N. W.	12	.72	....	Fog	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	5 0 a. m.	23.82	62	54	23.74	54	54	100	N. W.	10	.50	....	Fog	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	6 0 a. m.	23.81	62	54	23.73	54	54	100	N. W.	12	.72	....	Fog	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	7 14 a. m.	23.81	64	55	23.73	55	55	100	N. W.	12	.72	....	Nimbus ...	4-4	Hidden .	....	.....	6.50 a. m.	.....	.03	.....	Light rain.
	8 0 a. m.	23.81	62	56	23.73	56	56	100	N. W.	8	.32	....	Fog	....	Hidden .	....	.....	.....	6 45 a. m.	.05	.....	Foggy.
	9 0 a. m.	23.81	59	56	23.74	56	56	100	N. W.	8	.32	....	Fog	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	10 0 a. m.	23.83	62	58	23.75	58	58	100	N. W.	12	.72	....	Fog	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	11 0 a. m.	23.84	62	60	23.76	60	60	100	N. W.	8	.32	....	Fog	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
	12 0 m ..	23.82	63	60	23.74	60	60	100	N. W.	4	.08	227	Fog	....	Hidden .	....	.....	.....	.....	.....	.....	Foggy.
Base of Mount Mitchell, N. C.*	1 0 a. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	2 0 a. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	3 0 a. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	4 0 a. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	5 0 a. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	6 0 a. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	7 14 a. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	8 0 a. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	9 0 a. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	10 0 a. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	11 0 a. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	12 0 m ..	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Knoxville, Tenn.	7 0 a. m.	29.20	76	72	29.067	71	70	95	S. W.	4	.08	....	Stratus ...	4-4	Hidden .	....	.....	.....	.....	.....	.....	Cloudy.
	7 7 a. m.	29.20	76	72	29.067	71	90	95	S. W.	4	.08	....	Stratus ...	4-4	Hidden .	....	.....	.....	.....	.....	.....	Cloudy.
	11 32 a. m.	29.20	80	81	29.057	80	72	66	S. W.	8	.32	144	Stratus ...	1-4	Cumulus	2-4	0	.....	.....	.....	.....	Cloudy.

* No observations taken until August 6.

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Meteorological record for August 2, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer:	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.82	63	62	23.74	62	61	94	N. W.	8	.32	....	Hazy	....	Cumulus	3-4	N. W.			....	....	Cloudy.
	2 0 p. m.	23.81	62	61	23.73	63	60	83	N. W.	8	.32	....	Fog	....	Hidden	....	.....			....	....	Foggy.
	3 0 p. m.	23.80	64	63	23.72	63	60	83	N. W.	8	.32	....	Fog	....	Hidden	....	.....			....	....	Foggy.
	4 14 p. m.	23.79	62	60	23.71	60	60	100	N. W.	12	.72	....	Fog	....	Hidden	....	.....			....	....	Foggy.
	5 0 p. m.	23.79	62	58	23.71	58	58	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....			....	....	Foggy.
	6 0 p. m.	23.79	63	58	23.71	58	58	100	N. W.	10	.50	....	Hazy	....	Cumulus	3-4	N. W.			....	....	Cloudy.
	7 0 p. m.	23.80	63	58	23.72	58	57	94	N. W.	8	.32	....	Hazy	....	Cumulus	2-4	N. W.			....	....	Fair.
	8 0 p. m.	23.82	65	56	23.73	56	55	94	N. W	8	.32	....	Hazy	....	Cumulus	3-4	N. W.			....	....	Cloudy.
	9 0 p. m.	23.82	66	55	23.73	55	52	81	N. W.	8	.32	....	Hazy	....	Cirrus...	1-4	0			....	....	Fair.
	10 0 p. m.	23.82	66	55	23.73	55	53	87	N. W.	8	.32	....	0	0	Cirrus...	2-4	0			....	....	Fair.
	10 39 p. m.	23.83	66	55	23.74	55	54	93	N. W	2	.02	....	Light fog	....	Cir. & cu	2-4	0			....	....	Fair.
	12 0 p. m.	23.81	66	55	23.72	55	54	93	N. W.	4	.08	....	0	0	Cirrus...	2-4	0			....	....	Fair.
Base of Mount Mitchell, N. C.*	1 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	2 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	3 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	4 14 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	5 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	6 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	7 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	8 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	9 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	10 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	10 39 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
	12 0 p. m.	.....	....	....	.....	....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	....	....	
Knoxville, Tenn.	2 0 p. m.	29.15	83	85	28.998	84	73	58	S. W.	7	.24	....	Stratus ...	1-4	Cumulus	1-4	W.			....	....	Fair.
	4 7 p. m.	29.13	81	75	28.984	74	69	76	S. W.	12	.72	....	Stratus ...	3-4	Cumulus	1-4	0			....	....	Cloudy.
	9 0 p. m.	29.12	78	74	28.982	73	69	81	0	0	.00	....	0	0	0	0	0			....	....	Clear.
	10 32 p. m.	29.14	77	73	29.003	72	70	90	S. W.	2	.02	....	Stratus ...	1-4	Cir-cum.	2-4	0			....	....	Cloudy.

* No observations taken until August 6.

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Meteorological record for August 3, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.80	63	55	23.72	55	54	93	N. W.	8	.32	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	2 0 a. m.	23.79	62	56	23.71	56	55	94	N. W.	8	.32	....	0	0	Cirrus ..	2-4	0	.....	.....	.....	.....	Fair.
	3 0 a. m.	23.78	61	56	23.70	56	55	94	N. W.	10	.50	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	4 0 a. m.	23.77	60	55	23.69	55	54	93	N. W.	12	.72	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	5 0 a. m.	23.77	59	54	23.70	54	53	93	S. W.	12	.72	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	6 0 a. m.	23.78	60	56	23.70	56	54	87	N. W.	12	.72	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	7 14 a. m.	23.79	61	59	23.71	59	56	82	N. W.	8	.32	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	8 0 a. m.	23.80	63	60	23.72	60	57	82	N. W.	4	.08	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	9 0 a. m.	23.82	70	63	23.72	63	58	72	N. W.	6	.18	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	10 0 a. m.	23.82	66	63	23.73	63	58	72	N. W.	5	.12	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	11 0 a. m.	23.82	67	65	23.73	65	59	68	N. W.	4	.08	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	12 0 m...	23.82	70	66	23.72	66	60	69	N. W.	6	.18	170	Hazy	....	Cir. & cu.	2-4	N. W.	.....	.....	.....	.....	Fair.
Base of Mount Mitchell, N. C. *	1 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	2 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	3 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	4 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	5 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	6 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	7 14 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	8 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	9 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	10 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	11 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	12 0 m...	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
Knoxville, Tenn..	7 0 a. m.	29.14	75	73	29.010	72	70	90	S. W.	3	.04	....	0	0	Cirrus ..	4-4	0	.....	.....	.....	.....	Cloudy.
	7 7 a. m.	29.14	75	73	29.010	72	70	90	S. W.	3	.04	....	0	0	Cirrus ..	4-4	0	.....	.....	.....	.....	Cloudy.
	11 32 a. m.	29.16	81	82	29.014	81	75	78	W.	6	.18	114	Stratus ...	2-4	Cirrus ..	1-4	0	.....	.....	.....	.....	Cloudy.

* No observations taken until August 6.

Digitized by Google

Meteorological record for August 3, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.82	69	68	23.73	68	61	65	N. W.	8	.32	....	Hazy.....	....	Cir.& cu.	3-4	N. W.	.....	.....	.....	....	Cloudy.
	2 0 p. m.	23.82	68	69	23.73	69	62	65	N. W.	8	.32	....	Hazy.....	....	Cir.& cu.	3-4	N. W.	.....	.....	.....	....	Cloudy.
	3 0 p. m.	23.81	68	63	23.72	63	61	85	N. W.	6	.18	....	Hazy.....	....	Cir.& cu.	3-4	N. W.	.....	.....	.....	....	Cloudy; distant thunder storm.
	4 14 p. m.	23.79	66	61	23.70	61	59	88	N. W.	12	.72	....	Hazy.....	....	Cir.& cu.	3-4	N. W.	.....	.....	.....	....	Cloudy.
	5 0 p. m.	23.79	66	62	23.70	62	58	77	N. W.	8	.32	....	Hazy.....	....	Cir.& cu.	3-4	N. W.	.....	.....	.....	....	Cloudy.
	6 0 p. m.	23.79	67	58	23.70	58	58	100	N. W	12	.72	....	Fog	....	Hidden .	....	.....	.....	.....	.....	....	Foggy.
	7 0 p. m.	23.82	66	55	23.73	55	55	100	N. W.	16	1.92	....	Fog	....	Hidden	.....	.....	6.30 p. m.	6.48 p. m.	.03	....	Foggy.
	8 0 p. m.	23.83	70	53	23.73	53	52	93	N. W.	14	.98	....	0	0	Cir. & cu.	2-4	0	7.20 p. m.	7.40 p. m.	.04	....	Fair.
	9 0 p. m.	23.84	69	53	23.75	53	52	93	N. W.	12	.72	....	0	0	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	10 0 p. m.	23.84	68	53	23.75	53	52	93	N. W.	10	.50	....	0	0	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	10 39 p. m.	23.84	68	53	23.74	53	52	93	N. W.	8	.32	....	0	0	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	12 0 p. m.	23.82	63	53	23.74	53	52	93	N. W.	8	.32	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
Base of Mount Mitchell, N. C. *	1 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	2 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	3 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	4 14 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	5 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	6 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	7 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	8 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	9 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	10 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	10 39 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	12 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
Knoxville, Tenn.	2 0 p. m.	29.14	84	87	28.986	86	72	48	S. W.	8	.32	....	0	0	Cu. & cir.	3 4	W.	.....	.....	.....	....	Cloudy.
	4 7 p. m.	29.14	81	78	28.994	77	72	77	N. E.	13	.84	....	Stratus ...	2-4	Cumulus	2-4	0	3.15 p. m.	3.25 p. m.	.06	....	Clearing.
	9 0 p. m.	29.20	78	74	29.062	73	70	85	N. E.	4	.08	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	10 32 p. m.	29.20	78	73	29.062	72	69	85	N.	8	.32	....	Stratus ...	1-4	Cumulus	4-4	W.	.....	.....	.....	....	Cloudy.

* No observations taken until August 6.

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Meteorological record for August 4, 1873.

(Hourly observations)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.80	61	53	23.72	53	51	86	N. W.	12	.72	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	2 0 a. m	23.80	60	53	23.72	53	51	86	N. W.	4	.08	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	3 0 a. m.	23.79	60	54	23.71	54	53	93	W.	4	.08	....	Light fog	....	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	4 0 a. m.	23.80	59	55	23.73	55	54	93	W.	6	.18	....	Light fog	....	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	5 0 a. m.	23.80	58	55	23.73	55	54	93	S.W.	4	.08	....	Light fog	....	Cirrus ..	2-4	0	.....	.....	.....	.....	Fair.
	6 0 a. m.	23.81	59	56	23.74	56	55	94	S.W.	7	.24	....	Light fog	....	Cirrus ..	2-4	0	.....	.....	.....	.....	Fair.
	7 14 p. m.	23.82	60	58	23.74	56	56	88	S.W.	7	.24	....	Light fog	....	Cumulus	2-4	0	.....	.....	.....	.....	Fair.
	8 0 a. m.	23.84	62	59	23.76	59	57	88	S.W.	6	.18	....	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	9 0 a. m.	23.85	62	60	23.77	60	58	88	S W.	5	.12	....	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	10 0 a. m.	23.87	67	62	23.78	62	59	83	S.W.	4	.08	....	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	11 0 a. m.	23.86	63	60	23.78	60	58	88	S.W.	5	.12	....	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	12 0 m...	23.86	63	62	23.78	62	60	88	S.W.	5	.12	193	Fog	....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
Base of Mount Mitchell, N. C.*	1 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	2 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	3 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	4 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	5 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	6 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	7 14 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	8 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	9 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	10 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	11 0 a. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	12 0 m...	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Knoxville, Tenn.	7 0 a. m.	29.23	75	71	29.100	70	69	90	N. E.	8	.32	....	Stratus ...	4-4	Hidden	.....	.....	.....	.....	.....	.....	Cloudy.
	7 7 a. m.	29.23	75	71	29.100	70	69	90	N. E.	8	.32	..	Stratus ...	4-4	Hidden	.....	.....	.....	.....	.....	.....	Cloudy.
	11 32 a. m.	29.26	77	78	29.123	77	69	65	E.	8	.32	213	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.

* No observations taken until August 6.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.84	64	64	23.76	64	61	83	S.	2	.02	....	Fog	....	Hidden	....	.....	12 18 p. m.	12.39 p. m.	.04	....	Foggy.
	2 0 p. m.	23.82	64	57	23.74	57	56	94	N. W.	5	.12	....	Fog	....	Hidden	....	.....	1.06 p. m.	1.18 p. m.	.01	....	Foggy.
	3 0 p. m.	23.82	63	55	23.74	55	55	100	N. W.	6	.18	....	Fog	....	Hidden	....	.....	2.20 p. m.	2.45 p. m.	.15	....	Foggy; thunder-st'm from west to east.
	4 14 p. m.	23.83	63	56	23.75	56	56	100	N. W.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 p. m.	23.84	63	56	23.76	56	56	100	N.	3	.04	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 p. m.	23.84	62	55	23.76	55	55	100	N.	3	.04	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 0 p. m.	23.85	61	53	23.77	53	53	100	N. E.	6	.18	....	Nimbus	4-4	Hidden	....	.....	6.50 p. m.	.....	.04	....	Light rain.
	8 0 p. m.	23.86	62	52	23.78	52	52	100	E.	10	.50	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.07	....	Light rain.
	9 0 p. m.	23.87	65	51	23.78	51	51	100	E.	6	.18	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.09	....	Light rain.
	10 0 p. m.	23.86	63	51	23.78	51	51	100	E.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.12	....	Light rain.
	10 39 p. m.	23.86	62	50	23.78	50	50	100	E.	10	.50	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.62	....	Light rain.
	12 0 p. m.	23.86	60	49	23.78	49	49	100	E.	14	.98	....	Fog	....	Hidden	....	.....	.....	11.32 p. m.	.01	....	Foggy.
Base of Mount Mitchell, N. C.*	1 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	2 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	3 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	4 14 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	5 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	6 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	7 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	8 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	9 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	10 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	10 39 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
	12 0 p. m.	.....	....	....	.....	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	.....	.....	.....	....	
Knoxville, Tenn.	2 0 p. m.	29.22	80	80	29.076	79	67	50	N. W.	12	.72	....	0	0	Cumulus	3-4	W.	.....	.....	.....	....	Cloudy.
	4 7 p. m.	29.21	80	79	29.067	78	68	64	N.	20	2.00	....	0	0	Cumulus	4-4	W.	.....	.....	.....	....	Cloudy.
	9 0 p. m.	29.24	78	74	29.101	73	65	63	N.	16	1.28	....	0	0	Cumulus	2-4	E.	.....	.....	.....	....	Fair.
	10 32 p. m.	29.25	77	72	29.113	71	65	71	N.	7	.24	....	0	0	Cumulus	2-4	S.	.....	.....	.....	....	Fair.

*No observations taken until August 6.

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Meteorological record for August 5, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.86	62	49	23.78	49	49	100	E.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23.87	62	48	23.79	48	48	100	E.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.86	61	48	23.78	48	48	100	E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23.85	61	48	23.77	48	48	100	E.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23.86	60	48	23.78	48	48	100	E.	9	.40	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	23.87	61	48	23.79	48	48	100	E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23.88	59	49	23.81	49	49	100	E.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 a. m.	23.90	58	49	23.83	49	49	100	E.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 a. m.	23.91	58	50	23.84	50	50	100	E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 a. m.	23.92	58	50	23.85	50	50	100	N. E.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	11 0 a. m.	23.92	58	50	23.85	50	50	100	N. E.	11	.60	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 m ..	23.92	56	51	23.85	51	51	100	N. E.	10	.50	215	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
Base of Mount Mitchell, N. C.*	1 0 a. m.	.....	...	...	.....	...	...	.....	.....	...	...	...	.....	....	.....	....	.....	.....	.....	....	....	
	2 0 a. m.	.....	...	...	.....	...	...	.....	.....	...	...	...	.....	....	.....	....	.....	.....	.....	....	....	
	3 0 a. m.	.....	...	...	.....	...	...	.....	.....	...	...	...	.....	....	.....	....	.....	.....	.....	....	....	
	4 0 a. m.	.....	...	...	.....	...	...	.....	.....	...	...	...	.....	....	.....	....	.....	.....	.....	....	....	
	5 0 a. m.	.....	...	...	.....	...	...	.....	.....	...	...	...	.....	....	.....	....	.....	.....	.....	....	....	
	6 0 a. m.	.....	...	...	.....	...	...	.....	.....	...	...	...	.....	....	.....	....	.....	.....	.....	....	....	
	7 14 a. m.	.....	...	...	.....	...	...	.....	.....	...	...	...	.....	....	.....	....	.....	.....	.....	....	....	
	8 0 a. m.	.....	...	...	.....	...	...	.....	.....	...	...	...	.....	....	.....	....	.....	.....	.....	....	....	
	9 0 a. m.	.....	...	...	.....	...	...	.....	.....	...	...	...	.....	....	.....	....	.....	.....	.....	....	....	
	10 0 a. m.	.....	...	...	.....	...	...	.....	.....	...	...	...	.....	....	.....	....	.....	.....	.....	....	....	
	11 0 a. m.	.....	...	...	.....	...	...	.....	.....	...	...	...	.....	....	.....	....	.....	.....	.....	....	....	
	12 0 m ..	.....	...	...	.....	...	...	.....	.....	...	...	...	.....	....	.....	....	.....	.....	.....	....	....	
Knoxville, Tenn.	7 0 a. m.	29.31	74	69	29.182	68	63	74	N. E.	8	.32	....	0	0	Cumulus	1-4	S. W.	.....	.....	....	....	Fair.
	7 7 a. m.	29.31	74	69	29.182	68	63	74	N. E.	8	.32	....	0	0	Cumulus	1-4	S. W.	.....	.....	....	....	Fair.
	11 32 a. m.	29.34	78	70	29.200	78	66	57	N. E.	4	.08	103	0	0	Cumulus	2-4	E.	.....	.....	....	....	Fair.

* No observations taken until August 6.

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Meteorological record for August 5, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.92	60	53	23.84	53	52	93	N. E.	9	.40	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 p. m.	23.91	65	54	23.82	54	52	87	E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 p. m.	23.90	62	55	23.82	55	53	87	E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 14 p. m.	23.90	63	54	23.82	54	53	93	E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 p. m.	23.90	62	54	23.82	54	52	87	E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 p. m.	23.90	62	52	23.82	52	51	93	E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 0 p. m.	23.90	59	51	23.83	51	50	93	E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 p. m.	23.90	59	51	23.83	51	51	100	E.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 p. m.	23.90	61	50	23.82	50	50	100	E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 p. m.	23.91	61	50	23.83	50	49	93	S. E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 39 p. m.	23.92	61	50	23.84	50	50	100	S. E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 p. m.	23.90	60	49	23.83	49	49	100	S. E.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
Base of Mount Mitchell, N. C.*	1 0 p. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	2 0 p. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	3 0 p. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	4 14 p. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	5 0 p. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	6 0 p. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	7 0 p. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	8 0 p. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	9 0 p. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	10 0 p. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	10 39 p. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
	12 0 p. m.	.....	....	....	.....	....	....	....	.....	.....	.....	....	.....	....	.....	....	.....	.....	.....	....	....	
Knoxville, Tenn..	2 0 p. m.	29.27	81	83	29.123	82	69	49	N.	11	.60	....	0	0	Cumulus	2-4	N. E.	.....	.....	....	....	Fair.
	4 7 p. m.	29.26	82	85	29.111	84	70	46	N. E.	10	.50	....	0	0	Cumulus	2-4	0	.....	.....	....	....	Fair.
	9 0 p. m.	29.30	79	77	29.158	76	70	72	N. E.	3	.04	....	0	0	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy.
	10 32 p. m.	29.30	78	75	29.161	74	69	76	S. W.	6	.18	....	0	0	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy.

* No observations taken until August 6.

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Meteorological record for August 6, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.90	62	49	23.82	49	49	100	S. E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23.90	62	49	23.82	49	49	100	S. E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.89	60	48	23.81	48	48	100	E.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23.88	57	48	23.81	48	48	100	E.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23.88	54	49	23.82	49	48	93	E.	8	.32	....	Light fog	....	Cumulus	2-4	0	.....	.....	....	....	Cloudy.
	6 0 p. m.	23.89	52	49	23.83	49	49	100	S. E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 p. m.	23.89	53	49	23.83	49	49	100	S. E.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 p. m.	23.90	53	50	23.84	50	49	93	S. E.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 a. m.	23.91	54	50	23.85	50	49	93	S. E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 p. m.	23.91	54	51	23.85	51	50	93	S. E.	9	.40	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	11 0 a. m.	23.91	57	51	23.84	51	50	93	E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 m ..	23.91	58	51	23.84	51	50	93	E.	4	.08	269	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.63	65	60	27.52	60	59	94	0	0	0	....	Stratus ...	2-4	0	0	0	.....	.....	....	....	Fair.
	2 0 a. m.	27.63	64	58	27.52	58	57	94	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear.
	3 0 p. m.	27.62	63	58	27.51	58	57	94	0	0	0	....	Stratus ...	2-4	0	0	0	.....	.....	....	....	Fair.
	4 0 a. m.	27.62	62	57	27.52	57	56	94	0	0	0	....	0	0	Cumulus	1-4	S. E.	.....	.....	....	....	Fair.
	5 0 a. m.	27.62	62	56	27.52	56	55	93	0	0	0	....	Stratus ...	1-4	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	6 0 a. m.	27.64	61	59	27.54	59	58	94	0	0	0	....	Stratus ...	1-4	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	7 14 a. m.	27.67	64	64	27.56	64	60	78	0	0	0	....	Stratus ...	3-4	Cirrus ..	1-4	0	.....	.....	....	....	Cloudy.
	8 0 a. m.	27.67	66	69	27.56	69	63	70	E.	1	.01	....	0	0	Cumulus	2-4	E.	.....	.....	....	....	Fair.
	9 0 a. m.	27.68	68	68	27.56	68	62	69	E.	1	.01	....	Stratus ...	3-4	Cirrus ..	1-4	0	.....	.....	....	....	Cloudy.
	10 0 a. m.	27.67	68	70	27.55	70	64	70	E.	1	.01	....	Stratus ...	2-4	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	11 0 a. m.	27.66	70	74	27.54	74	65	59	E.	1	.01	....	Stratus ...	2-4	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	12 0 m ..	27.66	73	80	27.53	80	69	55	0	0	0	4	Stratus ...	3-4	0	0	0	.....	.....	....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.35	75	69	29.220	68	65	84	N. E.	6	.18	....	0	0	Cirrus ..	4-4	0	.....	.....	....	....	Cloudy.
	7 7 a. m.	29.35	75	69	29.220	68	65	84	N. E.	6	.18	....	0	0	Cirrus ..	4-4	0	.....	.....	....	....	Cloudy.
	11 39 a. m.	29.35	78	79	29.210	78	72	73	N. E.	7	.24	145	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.

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(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer; Daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.90	57	52	23.83	52	51	93	E.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	2 0 p. m.	23.90	58	51	23.83	51	50	93	E.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	3 0 p. m.	23.89	58	53	23.82	53	50	80	E.	8	.32	....	Fog	....	Cumulus	3-4	0	.....	.....	.....	.....	Cloudy.
	4 14 p. m.	23.89	59	53	23.82	53	51	86	E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	5 0 p. m.	23.89	59	53	23.82	53	51	86	E.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	6 0 p. m.	23.88	58	51	23.81	51	49	86	E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	7 0 p. m.	23.88	59	49	23.81	49	49	100	E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	8 0 p. m.	23.88	59	48	23.81	48	48	100	E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	9 0 p. m.	23.88	58	48	23.81	48	48	100	E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	10 0 p. m.	23.88	57	47	23.81	47	46	92	S.	12	.72	...	0	0	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	10 39 p. m.	23.88	56	47	23.81	47	46	92	S.	10	.50	....	0	0	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	12 0 p. m.	23.87	53	46	23.81	46	44	84	S.	12	.72	....	0	0	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.65	74	74	27.52	74	65	59	E.	1	.01	....	Stratus ...	3-4	0	0	0	.....	.....	.....	.....	Fair.
	2 0 p. m.	27.63	75	78	27.49	78	67	54	E.	1	.01	...	Stratus ...	2-4	Cirrus ..	1-4	W.	.....	.....	.....	.....	Fair.
	3 0 p. m.	27.62	75	70	27.48	70	62	61	0	0	0	....	Stratus ...	3-4	0	0	0	.....	.....	.....	.....	Fair.
	4 14 p. m.	27.62	73	70	27.49	70	63	66	0	0	0	...	Stratus ...	1-4	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	5 0 p. m.	27.61	73	69	27.48	69	63	70	0	0	0	....	Stratus ...	1-4	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	6 0 p. m.	27.63	71	63	27.50	63	61	89	0	0	0	....	Stratus ...	1-4	Cir. & cu.	2-4	0	.....	.....	.....	.....	Fair.
	7 0 p. m.	27.63	69	62	27.51	62	61	94	0	0	0	....	Stratus ...	3-4	0	0	0	.....	.....	.....	.....	Fair.
	8 0 p. m.	27.63	69	60	27.51	60	59	94	0	0	0	....	Stratus ...	2-4	0	0	0	.....	.....	.....	.....	Fair.
	9 0 p. m.	27.63	67	58	27.51	58	57	94	0	0	0	....	Stratus ...	1-4	0	0	0	.....	.....	.....	.....	Fair.
	10 0 p. m.	27.61	64	56	27.50	56	55	93	0	0	0	....	Stratus ...	2-4	0	0	0	.....	.....	.....	.....	Fair.
	10 39 p. m.	27.60	64	55	27.49	55	54	93	0	0	0	....	Stratus ...	2-4	0	0	0	.....	.....	.....	.....	Fair.
	12 0 p. m.	27.61	63	54	27.50	54	53	93	0	0	0	....	Stratus ..	4-4	0	0	0	.....	.....	.....	.....	Cloudy.
Knoxville, Tenn.	2 0 p. m.	29.30	80	83	29.155	82	67	42	N. E.	12	.72	....	0	0	Cumulus	1-4	E.	.....	.....	.....	.....	Fair.
	4 7 p. m.	29.27	81	85	29.123	84	67	37	E.	20	2.00	...	0	0	Cumulus	3-4	E.	.....	.....	.....	.....	Cloudy.
	9 0 p. m.	29.27	77	74	29.133	73	67	71	S. W.	3	.04	....	0	0	Cumulus	1-4	S. W.	.....	.....	.....	.....	Fair.
	10 32 p. m.	29.27	76	72	29.136	71	68	85	0	0	0	...	0	0	Cumulus	4-4	S.	.....	.....	.....	.....	Cloudy.

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Meteorological record for August 7, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.87	55	46	23.80	46	44	84	S.	16	1.28	....	Fog	....	Cumulus	2-4	S. E.	....	....	....	....	Fair.
	2 0 a. m.	23.86	55	45	23.79	45	44	92	S. W.	20	2.00	....	Hazy	....	Cumulus	3-4	S.	....	....	....	....	Cloudy.
	3 0 a. m.	23.85	56	45	23.79	45	44	92	S. W.	20	2.00	....	Fog	....	Cumulus	3-4	0	....	....	....	....	Cloudy.
	4 0 a. m.	23.84	56	46	23.77	46	44	84	S. W.	16	1.28	....	Fog	....	Cumulus	4-4	0	....	....	....	....	Cloudy.
	5 0 a. m.	23.85	57	48	23.78	48	45	85	W.	12	.72	....	Fog	....	Cumulus	3-4	0	....	....	....	....	Cloudy.
	6 0 a. m.	23.86	57	50	23.79	50	48	86	W.	16	1.28	....	Fog	....	Cumulus	4-4	0	....	....	....	....	Cloudy.
	7 14 a. m.	23.86	58	53	23.79	53	52	93	W.	8	.32	....	Fog	....	Cumulus	2-4	W.	....	....	....	....	Cloudy.
	8 0 a. m.	23.86	57	54	23.79	54	53	93	W.	4	.08	....	Fog	....	Hidden	....	.....	....	....	....	....	Foggy.
	9 0 a. m.	23.86	57	56	23.79	56	55	93	W.	6	.18	....	Fog	....	Hidden	....	.....	....	....	....	....	Foggy.
	10 0 a. m.	23.86	59	57	23.79	57	55	87	W.	4	.08	....	Fog	....	Hidden	....	.....	....	....	....	....	Foggy.
	11 0 a. m.	23.87	58	56	23.80	56	55	93	W.	4	.08	....	Fog	....	Hidden	....	.....	....	....	....	....	Foggy.
	12 0 m ..	23.87	59	59	23.80	59	57	88	W.	4	.08	223	Fog	....	Hidden	....	.....	....	....	....	....	Foggy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.58	62	55	27.48	55	54	93	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	....	....	....	....	Cloudy.
	2 0 a. m.	27.57	62	55	27.47	55	54	93	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	....	....	....	....	Cloudy.
	3 0 a. m.	27.56	62	56	28.46	56	55	93	0	0	0	....	Stratus ...	2-4	0	0	0	....	....	....	....	Fair.
	4 0 a. m.	27.56	62	56	27.46	56	55	93	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	....	....	....	....	Cloudy.
	5 0 a. m.	27.57	61	57	27.47	57	56	94	0	0	0	....	Stratus ...	2-4	Cumulus	1-4	S. W.	....	....	....	....	Fair.
	6 0 a. m.	27.57	61	59	27.47	59	57	88	0	0	0	....	0	0	Cumulus	2-4	S. W.	....	....	....	....	Fair.
	7 14 a. m	27.57	64	66	27.46	66	61	73	0	0	0	....	0	0	Cirrus ..	2-4	S. W.	....	....	....	....	Fair.
	8 0 a. m.	27.58	66	60	27.47	69	63	70	0	0	0	....	0	0	Cir. & cu.	2-4	S. W.	....	....	....	....	Fair.
	9 0 a. m.	27.58	69	71	27.46	71	64	66	0	0	0	....	Stratus ...	1-4	Cirrus ..	2-4	S. W.	....	....	....	....	Fair.
	10 0 a. m.	27.58	72	76	27.45	76	68	64	0	0	0	....	Stratus ...	3-4	Cirrus ..	1-4	W.	....	....	....	....	Cloudy.
	11 0 a. m.	27.58	74	73	27.45	73	66	67	0	0	0	....	Stratus ...	2-4	Cirrus ..	1-4	W.	....	....	....	....	Fair.
	12 0 m ..	27.57	77	75	27.43	75	68	68	0	0	0	3	Stratus ...	2-4	Cirrus ..	1-4	W.	....	....	....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.27	74	73	29.141	72	67	73	N. E.	7	.24	....	Hazy	....	Cir. & cu	4-4	0	....	....	....	....	Cloudy.
	7 7 a. m.	29.27	74	73	29.141	72	67	73	N. E.	7	.24	....	Hazy	....	Cir. & cu	4-4	0	....	....	....	....	Cloudy.
	11 32 a. m.	29.29	80	81	29.145	80	69	55	S.	5	.12	124	0	0	Cir. & cu	3-4	W.	....	....	....	....	Cloudy.

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Meteorological record for August 7, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.86	62	61	23.78	61	58	82	W.	4	.08	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	2 0 p. m.	23.86	63	63	23.78	63	59	78	W.	4	.08	....	Fog	....	Cumulus	3-4	0	....	....	....	....	Cloudy.
	3 0 p. m.	23.85	66	63	23.76	63	59	78	W.	8	.32	....	Fog	....	Cumulus	3-4	0	....	....	....	....	Cloudy.
	4 14 p. m.	23.84	63	60	23.76	60	57	82	W.	4	.08	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	5 0 p. m.	23.83	64	58	23.75	58	56	88	W.	4	.08	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	6 0 p. m.	23.84	67	56	23.75	56	55	93	W.	1	.01	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	7 0 p. m.	23.85	68	55	23.76	55	54	93	S. W.	4	.08	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	8 0 p. m.	23.86	64	54	23.77	54	53	93	S. W.	2	.02	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	9 0 p. m.	23.86	65	55	23.78	55	54	93	0	0	0	....	Hazy	....	Cumulus	2-4	0	....	....	....	....	Fair.
	10 0 p. m.	23.86	62	55	23.78	55	54	93	0	0	0	....	Fog	....	Cumulus	1-4	0	....	....	....	....	Fair.
	10 39 p. m.	23.86	66	54	23.77	54	53	93	0	0	0	....	Fog	....	Cumulus	2-4	0	....	....	....	....	Fair.
	12 0 p. m.	23.87	67	55	23.78	55	54	93	N. W.	2	.02	....	0	0	Cumulus	1-4	0	....	....	....	....	Fair.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.55	76	74	27.41	74	66	63	0	0	0	....	Stratus	3-4	0	0	0	....	....	....	....	Fair.
	2 0 p. m.	27.54	77	74	27.40	74	67	68	0	0	0	....	0	0	Cumulus	3-4	W.	....	....	....	....	Fair.
	3 0 p. m.	27.52	77	75	27.38	75	69	72	0	0	0	....	0	0	Cumulus	2-4	W.	....	....	....	....	Fair.
	4 14 p. m.	27.52	76	72	27.38	72	68	80	0	0	0	....	Stratus	2-4	Cirrus	1-4	W.	....	....	....	....	Fair.
	5 0 p. m.	27.50	76	72	27.36	72	69	85	0	0	0	....	Stratus	2-4	Cirrus	1-4	W.	....	....	....	....	Cloudy.
	6 0 p. m.	27.51	76	71	27.37	71	68	85	0	0	0	....	Stratus	4-4	Hidden	....	....	....	....	....	....	Cloudy.
	7 0 p. m.	27.53	75	68	27.39	68	67	95	0	0	0	....	Stratus	3-4	Cumulus	1-4	0	....	....	....	....	Cloudy.
	8 0 p. m.	27.52	73	66	27.39	66	65	94	0	0	0	....	Stratus	2-4	Cumulus	1-4	0	....	....	....	....	Fair.
	9 0 p. m.	27.54	72	63	27.41	63	62	94	0	0	0	....	Stratus	2-4	Cirrus	1-4	N.	....	....	....	....	Fair.
	10 0 p. m.	27.54	71	63	27.41	63	62	94	0	0	0	....	Stratus	2-4	Cir.-cum	1-4	W.	....	....	....	....	Fair.
	10 39 p. m.	27.53	69	61	27.41	61	60	94	0	0	0	....	Stratus	2-4	Cir.-cum	1-4	0	....	....	....	....	Cloudy.
	12 0 p. m.	27.51	68	62	27.39	62	61	94	0	0	0	....	Stratus	2-4	Cirrus	1-4	0	....	....	....	....	Fair.
Knoxville, Tenn.	2 0 p. m.	29.22	82	83	29.071	82	70	52	N. W.	4	.08	....	Hazy	....	Cumulus	2-4	S. W.	....	....	....	....	Cloudy.
	4 7 p. m.	29.15	85	87	29.038	86	74	55	S. W.	5	.12	....	Hazy	....	Cumulus	2-4	S. W.	....	....	....	....	Fair.
	9 0 p. m.	29.21	76	75	29.077	74	68	71	E.	5	.12	....	0	0	Cumulus	2-4	S. W.	....	....	....	....	Fair.
	10 32 p. m.	29.21	77	73	29.073	72	68	81	N. E.	2	.02	....	0	0	Cumulus	1-4	S. W.	....	....	....	....	Fair.

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Meteorological record for August 8, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.85	65	55	23.76	55	54	93	N. W.	4	.08	....	Light fog	....	Cirrus ..	1-4	W.	.....	.....	.....	....	Fair.
	2 0 a. m.	23.84	64	55	23.76	55	54	93	N. W.	8	.32	....	Light fog	....	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	3 0 a. m.	23.83	64	55	23.75	55	54	93	N. W.	10	.50	....	Light fog	....	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	4 0 a. m.	23.81	64	53	23.73	53	52	93	N. W.	9	.40	....	Light fog	....	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	5 0 a. m.	23.82	64	54	23.74	54	53	93	N. W.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 a. m.	23.82	63	54	23.74	54	54	100	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	24.82	59	53	23.75	53	52	93	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 a. m.	23.83	59	53	23.76	53	53	100	N. W.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.83	59	54	23.76	54	54	100	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 a. m.	23.84	59	55	23.77	55	55	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	9.10 a. m.	9.40 a. m.	.03	Foggy.
	11 0 a. m.	23.85	60	56	23.77	56	56	100	N. W.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	12 0 m ..	23.83	62	58	23.75	58	57	94	N. W.	8	.32	133	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.51	68	60	27.39	60	59	94	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 a. m.	27.51	67	60	27.39	60	59	94	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3 0 a. m.	27.50	66	60	27.39	60	59	94	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 0 a. m.	27.50	65	60	27.39	60	59	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	5 0 a. m.	27.51	66	61	27.40	61	59	88	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	6 0 a. m.	27.51	66	63	27.40	63	62	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	7 14 a. m.	27.52	67	66	27.40	66	64	89	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	8 0 a. m.	27.53	68	67	27.41	67	64	84	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	9 0 a. m.	27.54	69	68	27.42	68	66	89	0	0	0	....	Nimbus ..	4-4	Hidden	....	.....	.....	8.25 a. m.	.....	....	Light rain.
	10 0 a. m.	27.53	71	69	27.40	69	67	90	0	0	0	....	Nimbus...	3-4	Hidden	....	.....	.....	.....	.....	.03	Heavy rain.
	11 0 a. m.	27.53	73	72	27.40	72	68	80	0	0	0	....	Stratus ...	3-4	Cirrus ..	1-4	W.	.....	10.20 a. m.	.01	....	Cloudy.
	12 0 m ..	27.51	75	74	27.37	74	70	81	0	0	0	2	0	0	Cumulus	2-4	W.	11.15 a. m.	11.25 a. m.	.01	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.21	75	71	29.080	70	68	90	N. E.	3	.04	....	Stratus ...	1-4	Cumulus	4-4	S. W.	.....	.....	.....	....	Cloudy.
	7 7 a. m.	29.21	75	71	29.080	71	69	90	N. E.	3	.04	....	Stratus ...	1-4	Cumulus	4-4	S. W.	.....	.....	.....	....	Cloudy.
	11 32 a. m.	29.22	83	84	29.068	83	72	56	S. W.	8	.32	94	0	0	Cumulus	3-4	S. W.	.....	.....	.....	....	Cloudy.

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Meteorological record for August 8, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS Kind.	LOWER CLOUDS Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23. 81	63	60	23. 73	60	58	88	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 p. m.	23. 83	63	64	23. 75	64	61	83	N. W.	3	.04	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 p. m.	23. 84	65	64	23. 75	64	61	83	N. W.	6	.18	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	4 14 p. m.	23. 83	62	60	23. 75	60	58	88	N. W.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 p. m.	23. 82	62	57	23. 74	57	57	100	N. W.	4	.08	....	Fog	....	Hidden	....	.....	4 25 p. m.	.....	.37	....	Light rain.
	6 0 p. m.	23. 81	62	56	23. 73	56	56	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	5 10 p. m.	.03	....	Foggy.
	7 0 p. m.	23. 80	61	56	23. 72	56	55	94	N. W.	8	.32	....	Hazy	....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	8 0 p. m.	23. 80	61	54	23. 72	54	54	100	N. W.	4	.08	....	Hazy	....	Cumulus	2-4	0	.....	.....	....	....	Fair.
	9 0 p. m.	23. 81	62	54	23. 73	54	54	100	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 p. m.	23. 82	63	54	23. 74	54	54	100	N. W.	12	.72	....	Fog	....	Cumulus	2-4	0	.....	.....	....	....	Fair.
	10 39 p. m.	23. 82	61	54	23. 74	54	54	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 p. m.	23. 81	60	54	23. 73	53	53	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
Base of Mount Mitchell, N. C.	1 0 p. m.	27. 49	77	77	27. 35	77	71	73	N. W.	4	.08	....	0	0	Cumulus	1-4	W.	.....	.....	....	....	Fair.
	2 0 p. m.	27. 48	79	76	27. 33	76	70	73	0	0	0	....	Stratus	2-4	Cumulus	1-4	W.	.....	.....	....	....	Fair.
	3 0 p. m.	27. 49	79	75	27. 34	75	70	77	0	0	0	....	Stratus	2-4	Cumulus	1-4	W.	.....	.....	....	....	Fair.
	4 14 p. m.	27. 48	78	71	27. 33	71	68	85	S. W.	4	.08	....	Stratus	2-4	Cumulus	1-4	S. W.	.....	.....	....	....	Fair.
	5 0 p. m.	27. 47	76	70	27. 33	70	68	89	W.	4	.08	....	Nimbus	3-4	Cumulus	1-4	W.	.....	.....	....	....	Light rain.
	6 0 p. m.	27. 47	73	69	27. 34	69	67	90	0	0	0	....	Stratus	1-4	Cirrus	1-4	0	.....	.....	....	....	Fair.
	7 0 p. m.	27. 49	73	65	27. 36	65	64	94	0	0	0	....	0	0	Cirrus	1-4	W.	.....	.....	....	....	Fair.
	8 0 p. m.	27. 49	70	64	27. 37	64	62	89	0	0	0	....	Stratus	1-4	Cirrus	1-4	0	.....	.....	....	....	Fair.
	9 0 p. m.	27. 50	70	62	27. 38	62	61	94	0	0	0	....	Stratus	1-4	Cirrus	1-4	0	.....	.....	....	....	Fair.
	10 0 p. m.	27. 49	68	61	27. 37	61	60	94	0	0	0	....	Fog	....	Cirrus	1-4	0	.....	.....	....	....	Foggy.
	0 39 p. m.	27. 49	67	60	27. 37	60	60	100	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 p. m.	27. 48	66	60	27. 37	60	59	94	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
Knoxville, Tenn.	2 0 p. m.	29. 17	83	84	29. 018	83	73	60	N.	12	.72	....	0	0	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy.
	4 7 p. m.	29. 15	85	87	28. 994	86	74	65	S. W.	5	.12	....	0	0	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	9 0 p. m.	29. 16	79	75	29. 019	74	70	85	E.	4	.08	....	0	0	Cumulus	1-4	S. W.	.....	.....	....	....	Fair.
	11 32 p. m.	29. 18	79	74	29. 038	73	70	85	0	0	0	....	Stratus	1-4	Cumulus	1-4	W.	10 45 p. m.	10 55 p. m.	.01	....	Cloudy.

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Meteorological record for August 9, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.81	59	54	23.74	54	54	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23.81	59	54	23.74	54	54	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.80	58	54	23.73	54	54	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23.80	58	54	23.73	54	54	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23.81	58	54	23.74	54	54	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	23.82	59	54	23.75	54	54	100	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23.83	59	55	23.76	55	55	100	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 a. m.	23.84	59	55	23.77	55	55	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 a. m.	23.84	59	55	23.77	55	55	100	N. W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 a. m.	23.85	61	57	23.77	57	57	100	N. W.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	11 0 a. m.	23.87	65	60	23.78	60	59	94	N. W.	6	.18	....	Fog	....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	12 0 m ..	23.86	64	59	23.78	59	58	94	N. W.	8	.32	259	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.47	65	60	27.36	60	59	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	2 0 a. m.	27.46	65	60	27.35	60	59	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	3 0 a. m.	27.47	65	60	27.36	60	59	94	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	27.48	65	61	27.37	61	60	94	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	27.49	65	62	27.38	62	61	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	6 0 a. m.	27.51	67	63	27.30	63	61	89	0	0	0	....	Stratus ...	1-4	Cumulus	1-4	W.	.....	.....	....	....	Fair.
	7 14 a. m.	27.51	67	69	27.39	69	66	85	0	0	0	....	0	0	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	8 0 a. m.	27.52	70	79	27.40	79	70	62	N. E.	4	.08	....	0	0	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	9 0 a. m.	27.53	75	78	27.40	78	69	61	N. E.	4	.08	....	0	0	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	10 0 a. m.	27.53	77	70	27.39	79	70	62	N. E.	1	.01	....	0	0	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	11 0 a. m.	27.52	78	80	27.38	80	71	62	N. E.	1	.01	....	0	0	Cumulus	1-4	W.	.....	.....	....	....	Fair.
	12 0 m ..	27.51	80	78	27.36	78	70	65	N. E.	4	.08	11	0	0	Cumulus	1-4	N. W.	.....	.....	....	....	Fair.
Knoxville, Tenn	7 0 a. m.	29.21	76	72	29.077	71	70	95	0	0	0	....	Fog	....	Cir.-cum	3-4	N. W.	.....	.....	....	....	Fair.
	7 7 a. m.	29.21	77	72	29.077	71	70	95	0	0	0	....	Fog	....	Cir.-cum	3-4	N. W.	.....	.....	....	....	Fair.
	11 32 a. m.	29.23	83	85	29.078	84	73	57	S. W	4	.08	102	0	0	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.

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Meteorological record for August 9, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.85	64	62	23.77	62	61	94	W.	4	.08	....	Fog	.....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	2 0 p. m.	23.85	66	61	23.76	61	61	100	W.	4	.08	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 p. m.	23.84	64	60	23.76	60	60	100	W.	4	.08	....	Fog	.....	Hidden	....	.....	2 15 p. m.	2 45 p. m.	.20	....	Foggy.
	4 14 p. m.	23.83	65	61	23.74	61	59	88	N. W.	4	.08	....	Fog	.....	Cumulus	3-4	0	.....	.....	....	....	Foggy.
	5 0 p. m.	33.83	64	59	23.75	59	59	100	N. W.	7	.24	....	Hazy	.....	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	6 0 p. m.	23.82	64	59	23.74	59	58	94	N. W.	7	.24	....	Fog	.....	Hidden	..	.....	.....	.....	....	....	Foggy.
	7 0 p. m.	23.82	63	59	23.74	59	59	100	N. W.	11	.60	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 p. m.	23.83	62	58	23.75	58	58	100	N. W.	8	.32	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 p. m.	23.84	62	57	23.76	57	57	100	N. W.	8	.32	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 p. m.	23.85	61	55	23.77	55	55	100	N. W.	7	.24	....	Fog	.....	Cumulus	2-4	0	.....	.....	....	....	Fair.
	10 39 p. m.	23.86	61	56	23.78	56	54	87	N. W.	4	.08	....	Hazy	.....	Cir. & cu.	2-4	N. W.	.....	.....	....	....	Fair.
	12 0 p. m.	23.86	61	56	23.78	56	54	87	N. W.	2	.02	....	Hazy	.....	Cir. & cu.	2-4	N. W.	.....	.....	....	....	Fair.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.50	81	80	27.35	80	71	69	N. E.	4	.08	....	0	0	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	2 0 p. m.	27.50	81	77	27.35	77	71	73	N. E.	1	.01	....	0	0	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	3 0 p. m.	27.49	79	78	27.34	78	69	61	0	0	0	....	0	0	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy.
	4 14 p. m.	27.48	78	74	27.34	74	71	86	0	0	0	....	Stratus	1-4	Cumulus	1-4	0	3 10 p. m.	3 40 p. m.	.04	....	Fair.
	5 0 p. m.	27.47	78	73	27.33	73	71	90	N. E.	4	.08	....	0	0	Cumulus	1-4	0	.....	.....	....	....	Fair.
	6 0 p. m.	27.48	77	69	27.34	69	68	95	0	0	0	....	Stratus	2-4	Cumulus	1-4	0	.....	.....	....	....	Fair.
	7 0 p. m.	27.50	75	67	27.36	67	66	95	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	8 0 p. m.	27.52	74	67	27.39	67	66	95	0	0	0	....	Nimbus	3-4	Hidden	....	.....	7 20 p. m.	.....	.04	....	Light rain.
	9 0 p. m.	27.52	73	65	27.39	65	64	94	0	0	0	....	Stratus	1-4	Cir.-cum	1-4	0	.....	8 30 p. m.	.00	....	Fair.
	10 0 p. m.	27.53	71	64	27.40	64	63	94	0	0	0	....	Stratus	1-4	Cir.-cum	1-4	W.	.....	.....	....	....	Fair.
	10 39 p. m.	27.52	70	63	27.40	63	62	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	12 0 p. m.	27.51	69	62	27.39	62	62	100	0	0	0	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
Knoxville, Tenn.	2 0 p. m.	29.19	81	76	29.043	75	72	85	0	0	0	....	Stratus	3-4	0	0	0	.....	.....	....	....	Cloudy.
	4 7 p. m.	29.18	83	82	29.029	81	74	70	N. W.	8	.32	....	Stratus	3-4	Cumulus	2-4	0	1 15 p. m.	1 45 p. m.	.61	....	Threatening.
	9 0 p. m.	29.23	79	75	29.088	74	70	81	0	0	0	....	0	0	Cumulus	4-4	N. E.	.....	.....	....	....	Cloudy.
	10 32 p. m.	29.21	80	73	29.066	72	71	92	N.	4	.08	....	Stratus	1-4	Cumulus	2-4	N.	.....	.....	....	....	Clearing.

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Meteorological record for August 10, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.85	60	56	23.77	56	54	87	N. W.	4	.08	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	2 0 a. m.	23.84	60	55	23.76	55	54	93	N. W.	2	.02	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	3 0 a. m.	23.82	59	55	23.75	55	54	93	N. W.	6	.18	....	0	0	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	4 0 a. m.	23.81	59	55	23.74	55	54	93	N. W.	1	.01	....	0	0	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	5 0 a. m.	23.81	59	55	23.75	55	54	93	N. W.	2	.02	....	Hazy	.....	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	6 0 a. m.	23.82	59	56	23.75	56	55	94	N. W.	4	.08	....	Hazy	.....	Cir. & cu	2-4	N. W.	.....	.....	.....	....	Fair.
	7 14 a. m.	23.84	60	58	23.77	58	56	88	N. W.	6	.18	....	Hazy	.....	Cir. & cu	2-4	N. W.	.....	.....	.....	....	Fair.
	8 0 a. m.	23.85	60	60	23.78	60	58	88	N. W.	3	.04	....	Hazy	.....	Cirrus ..	2-4	N. W.	.....	.....	.....	....	Fair.
	9 0 a. m.	23.86	63	61	23.78	61	59	88	N. W.	5	.12	....	Hazy	.....	Cirrus ..	2-4	N. W.	.....	.....	.....	....	Fair.
	10 0 a. m.	23.88	65	66	23.79	66	61	73	N. W.	2	.02	....	Hazy	.....	Cir. & cu	2-4	N. W.	.....	.....	.....	....	Fair.
	11 0 a. m.	23.89	67	64	23.80	64	60	78	N. E.	4	.08	....	Hazy	.....	Cumulus	3-4	N. E.	.....	.....	.....	....	Cloudy.
	12 0 m ..	23.88	64	60	23.80	60	58	88	0	0	0	106	Hazy	.....	Cumulus	3-4	N. E.	.....	.....	.....	....	Cloudy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.50	68	62	27.38	62	61	94	0	0	0	....	Fog.....	.....	Hidden ..	.....	.....	.....	.....	.....	....	Foggy.
	2 0 a. m.	27.50	68	62	27.38	62	61	94	0	0	0	...	Fog.....	.....	Hidden ..	.....	.....	.....	.....	.....	....	Foggy.
	3 0 a. m.	27.51	68	63	27.39	63	62	94	0	0	0	....	Fog.....	.....	Hidden ..	.....	.....	.....	.....	.....	....	Foggy.
	4 0 a. m.	27.51	68	61	27.39	61	60	94	N. E.	1	.01	....	Fog.....	.....	Hidden ..	.....	.....	.....	.....	.....	....	Foggy.
	5 0 a. m.	27.51	67	59	27.39	59	58	94	0	0	0	....	Fog.....	.....	Cirrus ..	1-4	0	.....	.....	.....	....	Foggy.
	6 0 a. m	27.52	66	61	27.41	61	60	94	0	0	0	....	Fog.....	.....	Hidden ..	.....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	27.52	67	67	27.40	67	65	89	0	0	0	....	0	0	Cir.-cum	1-4	0	.....	.....	.....	....	Fair.
	8 0 a. m.	27.53	69	74	27.41	74	68	72	0	0	0	....	0	0	Cir.-cum	2-4	W.	.....	.....	.....	....	Fair.
	9 0 a. m.	27.54	74	76	27.41	76	70	73	N. W.	1	.01	....	0	0	Cumulus	1-4	N. W.	.....	.....	.....	....	Fair.
	10 0 a. m.	27.55	77	79	27.41	79	71	66	N. E.	1	.01	....	0	0	Cumulus	2-4	W.	.....	.....	.....	....	Fair.
	11 0 a. m.	27.54	79	81	27.39	81	71	59	N. E.	1	.01	....	0	0	Cumulus	2-4	N. E.	.....	.....	.....	....	Fair.
	12 0 m ..	27.55	78	71	27.41	71	68	85	N. E.	4	.08	9	Nimbus...	4-4	Hidden ..	.....	.....	11.35 a. m.	.....	.02	....	Heavy rain.
Knoxville, Tenn.	7 0 a. m.	29.24	76	70	29.107	69.5	69	97	N. W.	3	.04	....	Fog.....	.....	Hidden ..	.....	.....	.....	.....	.....	....	Foggy.
	7 7 a. m.	29.24	76	70	29.107	69.5	69	97	N. W.	3	.04	....	Fog.....	.....	Hidden ..	.....	.....	.....	.....	.....	....	Foggy.
	11 32 a. m.	29.25	81	81	29.104	81	72	66	N.	4	.08	85	0	0	Cumulus	3-4	N. E.	.....	.....	.....	....	Fair.

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Meteorological record for August 10, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenc'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 p. m.	23. 87	66	63	23. 78	63	59	78	S. E.	4	.08	....	Nimbus...	1-4	Cumulus	3-4	S. E.	1.00 p. m.	.....	.....	.....	Light rain.
	2 0 p. m.	23. 85	63	57	23. 77	57	57	100	N. E.	8	.32	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.43	.....	Heavy rain; thunder-storm from E.
	3 0 p. m.	23. 85	63	58	23. 77	58	57	94	N. E.	2	.02	....	Hazy	....	Cumulus	4-4	N. E.	.....	2.10 p. m.	.06	.....	Cloudy.
	4 14 p. m.	23. 84	62	58	23. 76	58	57	94	N. W	16	1.28	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	5 0 p. m.	23. 83	63	59	23. 75	59	58	94	N. W.	12	.72	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	6 0 p. m.	23. 83	67	57	23. 74	57	55	87	N. E.	12	.72	....	Hazy	....	Cumulus	3-4	N.	.....	.....	.....	.....	Cloudy.
	7 0 p. m.	23. 84	62	57	23. 76	57	56	94	N. E.	10	.50	....	Fog.....	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	8 0 p. m.	23. 85	62	54	23. 77	54	54	100	E.	8	.32	....	Nimbus...	4-4	Hidden	....	.....	7.32 p. m.	.....	.26	.....	Heavy rain.
	9 0 p. m.	23. 85	60	55	23. 77	55	55	100	E.	12	.72	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.15	.....	Light rain.
	10 0 p. m.	23. 84	60	54	23. 76	54	54	100	N. E.	8	.32	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.21	.....	Light rain.
	10 39 p. m.	23. 83	59	53	23. 76	53	53	100	N. E.	18	1.62	....	Fog.....	....	Hidden	....	.....	.....	10.30 p. m.	.06	.....	Foggy.
	12 0 p. m.	23. 83	58	53	23. 76	53	52	93	N. E.	6	.32	....	Light fog	....	Cirrus ..	2-4	0	.....	.....	.....	.....	Clearing up.
Base of Mount Mitchell, N. C..	1 0 p. m.	27. 54	77	72	27. 40	72	68	80	N. E.	1	.01	....	Stratus ...	2-4	Cumulus	1-4	N. W.	.....	12.30 p. m.	.11	.....	Cloudy.
	2 0 p. m.	27. 52	78	73	27. 38	73	70	80	0	0	....	....	Stratus ...	2-4	Cumulus	1-4	N. W.	.....	.....	.....	.....	Cloudy.
	3 0 p. m.	27. 51	78	75	27. 37	75	70	77	N. E.	1	.01	....	Stratus ...	1-4	Cumulus	1-4	N.	.....	.....	.....	.....	Fair.
	4 14 p. m.	27. 49	78	75	27. 35	75	70	77	E.	1	.01	....	Stratus ...	1-4	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	5 0 p. m.	27. 49	78	74	27. 35	74	70	81	0	0	0	....	Stratus ...	1-4	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	6 0 p. m.	27. 49	77	71	27. 35	71	68	85	0	0	0	....	Stratus ...	2-4	Cumulus	1-4	N.	.....	.....	.....	.....	Fair.
	7 0 p. m.	27. 53	75	73	27. 39	73	65	63	N.	4	.08	....	Stratus ...	4-4	Hidden	....	.....	6.38 p. m.	6.55 p. m.	.....	.....	Cloudy.
	8 0 p. m.	27. 56	73	65	27. 43	65	65	100	N. W.	4	.08	....	Nimbus...	4-4	Hidden	....	.....	7.25 p. m.	.....	.43	.....	Heavy rain.
	9 0 p. m.	27. 54	72	65	27. 41	65	65	100	N. W.	1	.01	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.53	.....	Heavy rain.
	10 0 p. m.	27. 53	72	65	27. 40	65	64	94	N. W.	4	.08	....	Stratus ...	3-4	Hidden	....	.....	.....	9.46 p. m.	.04	.....	Cloudy.
	10 39 p. m.	27. 53	72	64	27. 40	64	63	94	0	0	0	....	Stratus ...	1-4	0	0	0	.....	.....	.....	.....	Fair.
	12 0 p. m.	27. 50	70	61	27. 38	61	60	94	0	0	0	....	Fog.....	....	Cirrus ..	1-4	0	.....	.....	.....	.....	Foggy.
Knoxville, Tenn.	2 0 p. m.	29. 21	84	87	29. 056	86	74	55	N.	5	.12	....	0	0	Cumulus	2-4	N. E.	.....	.....	.....	.....	Fair.
	4 7 p. m.	29. 16	85	90	29. 003	89	74	47	N.	12	.72	....	0	0	Cumulus	1-4	N. E.	.....	.....	.....	.....	Fair.
	9 0 p. m.	29. 20	80	78	29. 056	77	71	71	N.	6	.18	....	0	0	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	10 32 p. m	29. 19	80	76	29. 046	75	70	74	N.	6	.18	....	0	0	0	0	0	.....	.....	.....	.....	Clear.

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Meteorological record for ...

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached	THERM. Exposed	Corrected barometer.	Dry bulb	Wet bulb	Relative hum.	WIND. Direction.	WIND. Velocity per hour.	WIND. Total amount.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 00 a. m.	23.98	54	54	23.75	54	53	93	N. E.	0	0	.32	Light fog	0	Cirrus	1-4	0					Fair.
	2 00 a. m.	23.91	53	53	23.74	53	53	93	N. E.	0	0	.32	Fog	0	Cirrus	1-4	0					Fair.
	3 00 a. m.	23.90	53	53	23.74	53	53	93	N. E.	0	0	.32	Fog	0	Cirrus	2-4	0					Fair.
	4 00 a. m.	23.91	53	53	23.75	53	53	94	N. E.	0	0	.32	Fog	0	Cirrus	2-4	0					Fair.
	5 00 a. m.	23.93	53	53	23.76	53	53	94	N. E.	0	0	.32	Fog	0	Cirrus	1-4	N. W.					Fair.
	6 00 a. m.	23.93	53	53	23.76	53	53	94	N. E.	0	0	.32	Fog	0	Cirrus	2-4	N. W.					Fair.
	7 14 a. m.	23.93	53	53	23.76	53	53	94	N. E.	0	0	.32	Fog	0	Cirrus	2-4	N. W.					Fair.
	8 00 a. m.	23.93	53	53	23.76	53	53	94	N. E.	0	0	.32	Fog	0	Cirrus	2-4	N. W.					Fair.
	9 00 a. m.	23.93	53	53	23.76	53	53	94	N. E.	0	0	.32	Fog	0	Cirrus	2-4	N. W.					Fair.
	10 00 a. m.	23.93	53	53	23.76	53	53	94	N. E.	0	0	.32	Fog	0	Cirrus	2-4	N. W.					Fair.
	11 00 a. m.	23.93	53	53	23.76	53	53	94	N. E.	0	0	.32	Fog	0	Cirrus	2-4	N. W.					Fair.
	12 00 m.	23.93	53	53	23.76	53	53	94	N. E.	0	0	.32	Fog	0	Cirrus	2-4	N. W.					Fair.
	1 00 p. m.	23.91	54	54	23.74	54	53	93	N. E.	0	0	.32	Light fog	0	Cirrus	1-4	0					Fair.
	2 00 p. m.	23.91	54	54	23.74	54	53	93	N. E.	0	0	.32	Fog	0	Cirrus	1-4	0					Fair.
	3 00 p. m.	23.90	54	54	23.74	54	53	93	N. E.	0	0	.32	Light fog	0	Cirrus	1-4	0					Fair.
	4 00 p. m.	23.91	54	54	23.75	54	53	93	N. E.	0	0	.32	Fog	0	Cirrus	1-4	0					Fair.
	5 00 p. m.	23.93	54	54	23.76	54	53	93	N. E.	0	0	.32	Fog	0	Cirrus	1-4	0					Fair.
	6 00 p. m.	23.93	54	54	23.76	54	53	93	N. E.	0	0	.32	Fog	0	Cirrus	1-4	0					Fair.
	7 00 p. m.	23.93	54	54	23.76	54	53	93	N. E.	0	0	.32	Fog	0	Cirrus	1-4	0					Fair.
	8 00 p. m.	23.93	54	54	23.76	54	53	93	N. E.	0	0	.32	Fog	0	Cirrus	1-4	0					Fair.
	9 00 p. m.	23.93	54	54	23.76	54	53	93	N. E.	0	0	.32	Fog	0	Cirrus	1-4	0					Fair.
	10 00 p. m.	23.93	54	54	23.76	54	53	93	N. E.	0	0	.32	Fog	0	Cirrus	1-4	0					Fair.
	11 00 p. m.	23.93	54	54	23.76	54	53	93	N. E.	0	0	.32	Fog	0	Cirrus	1-4	0					Fair.
	12 00 m.	23.93	54	54	23.76	54	53	93	N. E.	0	0	.32	Fog	0	Cirrus	1-4	0					Fair.
Base of Mount Mitchell, N. C.	1 00 a. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Light fog	0	Cirrus	1-4	0					Fair.
	2 00 a. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	3 00 a. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Light fog	0	Cirrus	1-4	0					Fair.
	4 00 a. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	5 00 a. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	6 00 a. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	7 14 a. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	8 00 a. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	9 00 a. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	10 00 a. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	11 00 a. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	12 00 m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	1 00 p. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	2 00 p. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	3 00 p. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	4 00 p. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	5 00 p. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	6 00 p. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	7 00 p. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	8 00 p. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	9 00 p. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	10 00 p. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	11 00 p. m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
	12 00 m.	27.49	58	58	27.37	58	57	96	N. E.	0	0	.08	Fog	0	Cirrus	1-4	0					Fair.
Knoxville, Tenn.	7 7 a. m.	29.31	68	68	29.08	68	64	79	N. E.	4	1	.01	Haze	0	Cumulus	1-4	S. E.					Fair.
	11 30 a. m.	29.31	68	68	29.08	68	64	79	N. E.	4	1	.01	Haze	0	Cumulus	1-4	S. E.					Fair.
	2 00 p. m.	29.31	68	68	29.08	68	64	79	N. E.	4	2	.02	Haze	0	Cumulus	1-4	S. E.					Fair.
	9 00 p. m.	29.31	68	68	29.08	68	64	79	N. E.	4	2	.02	Haze	0	Cumulus	1-4	N. E.					Fair.
	12 00 m.	29.31	68	68	29.08	68	64	79	N. E.	4	2	.02	Haze	0	Cumulus	1-4	N. E.					Fair.

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Meteorological re

| Place of observation. | Time of observation. | Barometer. | THERM. Attached. | THERM. Exposed. | Corrected barometer. | HYGROM. Dry bulb. | HYGROM. Wet bulb. | Relative humidity. | WIND. Direction. | WIND. Velocity per hour. | WIND. Pressure per sq. ft. | WIND. Daily velocity. | Kind. | | |

Meteorological record for August 11, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.82	58	54	23.75	54	53	93	N. E.	8	.32	....	0	0	Cirrus ..	1-4	.....	.....	.....	....	....	Fair.
	2 0 a. m.	23.81	58	54	23.74	54	53	93	N. E.	8	.32	....	0	0	Cirrus ..	1-4	.....	.....	.....	....	....	Fair.
	3 0 a. m.	23.81	58	55	23.74	55	53	87	N. E.	4	.08	....	0	0	Cirrus ..	2-4	.....	.....	.....	....	....	Fair.
	4 0 a. m.	23.80	58	55	23.73	55	53	87	N. E.	4	.08	....	0	0	Cirrus ..	2-4	.....	.....	.....	....	....	Fair.
	5 0 a. m.	23.81	59	55	23.74	55	53	87	N. E.	8	.32	....	0	0	Cirrus ..	2-4	.....	.....	.....	....	....	Fair.
	6 0 a. m.	23.82	59	55	23.75	55	54	94	N. E.	7	.24	....	0	0	Cirrus ..	2-4	.....	.....	.....	....	....	Fair.
	7 14 a. m.	23.83	60	56	23.76	56	55	94	N. E.	4	.08	....	0	0	Cirrus ..	2-4	.....	.....	.....	....	....	Fair.
	8 0 a. m.	23.83	61	56	23.75	56	55	94	N. E.	4	.08	...	Light fog..	.....	Cirrus ..	2-4	.....	.....	.....	....	....	Fair.
	9 0 a. m.	23.84	63	57	23.76	57	57	100	N. E.	4	.08	....	Fog	.....	Hidden .	.....	.....	.....	.....	....	....	Foggy.
	10 0 a. m.	23.85	63	58	23.77	58	56	88	N. E.	4	.08	....	Fog	.....	Hidden .	.....	.....	.....	.....	....	....	Foggy.
	11 0 a. m.	23.86	65	61	23.77	61	58	82	N. E.	4	.08	....	Light fog..	.....	Cumulus	4-4	N. E.	.....	.....	....	....	Cloudy.
	12 0 m...	23.86	66	62	23.77	62	59	83	N. E.	6	.18	173	Hazy	.....	Cumulus	3-4	N. E.	.....	.....	....	....	Cloudy.
Base of Mount Mitchell, N. C..	1 0 a. m.	27.49	69	61	27.37	61	60	94	0	0	0	....	Fog	.....	Hidden .	.....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	27.49	69	61	27.39	61	60	94	0	0	0	....	Fog	.....	Hidden .	.....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	27.49	68	61	27.39	61	60	94	0	0	0	....	Fog	.....	Hidden .	.....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	27.49	67	61	27.37	61	60	94	0	0	0	....	Fog	.....	Hidden .	.....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	27.49	67	61	27.37	61	60	94	0	0	0	....	Fog	.....	Hidden .	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	27.51	66	60	27.40	60	60	100	0	0	0	....	Fog	.....	Hidden .	.....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	27.51	67	67	27.39	67	64	84	0	0	0	....	Stratus ...	1-4	0	0	0	.....	.....	....	....	Clear.
	8 0 a. m.	27.52	69	75	27.40	75	70	77	0	0	0	....	Stratus ...	1-4	Cirrus ..	1-4	W.	.....	.....	....	....	Fair.
	9 0 a. m.	27.54	73	73	27.41	73	68	76	S. E.	4	.08	....	Stratus ...	2-4	Cumulus	1-4	W.	.....	.....	....	....	Fair.
	10 0 a. m.	27.54	75	74	27.40	74	68	72	S. E.	4	.08	....	Stratus ...	2-4	Cumulus	1-4	0	.....	.....	....	....	Fair.
	11 0 a. m.	27.53	77	76	27.39	76	69	68	S. E.	1	.01	....	0	0	Cumulus	2-4	S. E.	.....	.....	....	....	Fair.
	12 0 m...	27.52	78	74	27.38	74	68	72	S. E.	4	.08	16	0	0	Cumulus	1-4	S. E.	.....	.....	....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.22	76	72	29.087	71	68	83	N.	2	.02	....	Hazy	.....	0	0	0	.....	.....	....	....	Fair.
	7 7 a. m.	29.22	76	72	29.087	71	68	83	N.	2	.02	....	Hazy	.....	0	0	0	.....	.....	....	....	Fair.
	11 32 a. m.	29.21	82	84	29.092	83	70	59	E.	8	.32	138	0	0	Cumulus	1-4	N. E.	.....	.....	....	....	Fair.

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Meteorological record for August 11, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.85	66	62	23.76	62	59	83	E.	4	.08	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	2 0 p. m.	23.84	66	61	23.75	59	58	88	E.	0	0	...	Hazy	...	Cumulus	3-4	E.	...	...	...	...	Cloudy.
	3 0 p. m.	23.83	65	63	23.74	63	60	93	E.	2	.02	...	Hazy	...	Cumulus	4-4	E.	...	...	...	...	Cloudy.
	4 14 p. m.	23.82	64	58	23.74	58	57	94	E.	8	.32	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	5 0 p. m.	23.82	63	58	23.74	58	57	94	E.	4	.08	...	Hazy	...	Cumulus	3-4	E.	4.25 p. m.	4.40 p. m.	.15	...	Cloudy.
	6 0 p. m.	23.82	64	57	23.74	58	57	100	S. E.	4	.08	...	Light fog	...	Cumulus	3-4	S. E.	...	...	...	...	Cloudy.
	7 0 p. m.	23.82	64	56	23.74	56	55	94	N. E.	3	.04	...	Light fog	...	Cir. & cu	2-4	N. E.	...	...	...	...	Fair.
	8 0 p. m.	23.83	64	55	23.75	55	53	87	N. E.	6	.12	...	...	0	Cumulus	2-4	N. E.	...	...	...	...	Fair.
	9 0 p. m.	23.84	61	54	23.76	54	53	93	S. E.	10	.50	...	...	0	Cumulus	3-4	S. E.	...	...	...	...	Cloudy.
	10 0 p. m.	23.84	59	53	23.77	53	51	86	E.	10	.50	...	...	0	Cir. & cu	2-4	0	...	...	...	...	Fair.
	10 39 p. m.	23.83	58	52	23.76	52	51	93	S.	12	.72	...	...	0	Cir. & cu	2-4	0	...	...	...	...	Fair.
	12 0 p. m.	23.82	58	52	23.75	52	51	93	S.	6	.18	...	...	0	Cirrus ...	2-4	N. W.	...	...	...	...	Fair.
	1 0 p. m.	27.51	78	75	27.37	75	68	68	S. E.	4	.08	...	...	0	Cumulus	1-4	S.	...	...	...	...	Fair.
	2 0 p. m.	27.50	78	76	27.36	76	70	73	S. E.	4	.08	...	Stratus	2-4	Cumulus	1-4	0	...	...	...	...	Cloudy.
	3 0 p. m.	27.50	78	73	27.36	73	68	76	S. E.	4	.08	...	Stratus	2-4	Cumulus	1-4	0	...	...	...	...	Cloudy.
	4 14 p. m.	27.49	77	73	27.35	73	68	81	0	0	0	...	Stratus	2-4	Cumulus	2-4	W.	...	...	...	...	Cloudy.
	5 0 p. m.	27.49	75	72	27.35	72	68	80	E.	1	0	...	Stratus	4-4	Hidden	...	...	...	...	...	...	Cloudy.
	6 0 p. m.	27.49	75	70	27.35	70	68	90	0	0	0	...	0	0	Cumulus	1-4	W.	...	...	...	...	Fair.
	7 0 p. m.	27.49	75	68	27.35	68	66	89	0	0	0	...	Stratus	1-4	0	0	0	...	...	...	...	Fair.
	8 0 p. m.	27.51	74	68	27.38	68	65	84	E.	1	.01	...	0	0	0	0	0	...	...	...	...	Fair.
	9 0 p. m.	27.51	73	65	27.38	65	63	89	0	0	0	...	0	0	Cumulus	1-4	S.	...	...	...	...	Clear.
	10 0 p. m.	27.51	71	63	27.38	63	62	94	0	0	0	...	0	0	Cirrus ...	1-4	N.	...	...	...	...	Clear.
	10 39 p. m.	27.51	70	62	27.39	62	60	88	0	0	0	...	0	0	Cir. cum-	1-4	W.	...	...	...	...	Clear.
	12 0 p. m.	27.48	67	59	27.36	59	53	94	N.	6	.18	...	Fog	0	Cumulus	2-4	S. W.	...	...	...	...	Fair.
	2 0 p. m.	29.18	85	68	29.023	85	71	47	N.	11	.60	...	Hazy	...	Cumulus	2-4	S. E.	...	...	...	...	Fair.
	4 7 p. m.	29.15	86	69	29.000	78	72	42	N.	2	.02	...	...	0	Cumulus	1-4	N. E.	...	...	...	...	Fair.
	9 0 p. m.	29.13	81	79	28.984	78	71	69	N.	6	.18	...	...	0	0	0	0	...	...	...	...	Clear.
Knoxville, Tenn.	10 32 p. m.	29.14	81	75	28.994	74	70	81	N. W.	...	...	...	...	0	0	0	0	...	...	...	...	Clear.

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Meteorological record for August 12, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM.		Corrected barometer.	HYGROM.			WIND.				LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
			Attached.	Exposed.		Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from—)	Commen'd.	Ended.			
Summit of Mount Mitchell, N. C..	1 0 a. m.	23. 81	58	52	23. 74	52	50	86	S.	4	.08	....	0	0	Cir.& cu.	2-4	0	.....	.....	....	....	Fair.
	2 0 a. m.	23. 78	57	52	23. 71	52	50	86	S.W.	6	.18	....	Hazy	....	Cir.& cu.	2-4	0	.....	.....	....	....	Fair.
	3 0 a. m.	23. 78	56	52	23. 71	52	50	86	S.W.	12	.72	....	0	0	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	4 0 a. m.	23. 78	56	53	23. 71	53	51	86	S.W.	8	.32	....	0	0	Cir.& cu.	2-4	0	.....	.....	....	....	Fair.
	5 0 a. m.	23. 79	56	52	23. 72	52	51	93	S.W.	12	.72	....	Hazy	....	Cir.& cu.	1-4	0	.....	.....	....	....	Fair.
	6 0 a. m.	23. 80	56	52	23. 73	52	51	93	S.W.	6	.18	....	Light fog	....	Cumulus	1-4	S.W.	.....	.....	....	....	Fair.
	7 14 a. m.	23. 81	57	54	23. 74	54	52	87	S.W.	7	.24	....	Light fog	....	Cumulus	1-4	W.	.....	.....	....	....	Fair.
	8 0 a. m.	23. 82	59	56	23. 75	56	53	81	W.	5	.12	....	Light fog	....	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	9 0 a. m.	23. 83	60	60	23. 75	60	55	71	N. W.	4	.08	....	Light fog	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	10 0 a. m.	23. 84	62	62	23. 76	62	57	72	N. W.	6	.18	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	..	Cloudy.
	11 0 a. m.	23. 84	63	63	23. 76	63	57	67	N. W.	5	.12	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	12 0 m...	23. 83	68	67	23. 74	67	61	69	W.	4	.08	132	Hazy	....	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.
Base of Mount Mitchell, N. C..	1 0 a. m.	27. 47	66	58	27. 36	58	57	94	0	0	0	....	Fog.....	....	Hidden .	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	27. 47	65	57	27. 36	57	56	94	0	0	0	....	Fog.....	....	Hidden .	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	27. 47	64	58	27. 36	58	56	88	0	0	0	....	Fog.....	....	Hidden .	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	27. 46	64	58	27. 35	58	57	94	0	0	0	....	Fog.....	....	Hidden .	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	27. 48	65	60	27. 37	60	58	88	0	0	0	....	Fog.....	....	Hidden .	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	27. 48	64	61	27. 37	61	60	94	0	0	0	....	Fog.....	....	Hidden .	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	27. 48	67	69	27. 36	69	64	75	0	0	0	....	Stratus ..	1-4	Cirrus ..	1-4	N. W.	.....	.....	....	....	Fair.
	8 0 a. m.	27. 49	70	74	27. 37	74	68	72	0	0	0	....	0	0	Cumulus	1-4	N. W.	.....	.....	....	....	Fair.
	9 0 a. m.	27. 49	73	76	27. 36	76	69	68	0	0	0	....	0	0	Cumulus	1-4	W.	.....	.....	....	....	Fair.
	10 0 a. m	27. 48	76	79	27. 34	79	71	66	E.	1	.01	....	0	0	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	11 0 a. m.	27. 48	78	78	27. 34	78	70	65	0	0	0	....	0	0	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	12 0 m...	27. 46	80	76	27. 31	76	70	73	E.	1	.01	10	0	0	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
Knoxville, Tenn.	7 0 a. m.	29. 17	77	73	29. 034	72	70	90	S.W.	1	.01	....	Hazy	....	Cirrus ..	3-4	W.	.....	.....	....	....	Fair.
	7 7 p. m.	29. 17	77	73	29. 034	72	70	90	S.W.	1	.01	....	Hazy	....	Cirrus ..	3-4	W.	.....	.....	....	....	Fair.
	11 32 a. m.	29. 18	86	85	29. 021	84	73	56	S.	8	.32	119	0	0	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.

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Meteorological record for August 12, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.82	67	66	23.73	66	61	73	W.	8	.32	....	Hazy	....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
	2 0 p. m.	23.81	67	65	23.72	65	61	78	W.	2	.02	....	Hazy	....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
	3 0 p. m.	23.80	68	63	23.71	63	59	78	W.	4	.08	....	Hazy	....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy; distant thunder-storm in S. W.
	4 14 p. m.	23.79	63	61	23.71	61	59	88	W.	3	.04	....	Light fog	....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
	5 0 p. m.	23.78	63	59	23.70	59	57	87	N. W.	3	.04	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	....	....	Cloudy; distant thunder-storm in N. W.
	6 0 p. m.	23.78	65	60	23.69	60	58	88	W.	4	.08	....	Hazy	....	Cir. & cu.	3-4	W.	.....	.....	....	....	Cloudy; distant thunder-storm in N. E.
	7 0 p. m.	23.77	61	58	23.69	58	57	94	S. W.	4	.08	....	Hazy	....	Cumulus	4-4	S. W.	.....	.....	....	....	Cloudy.
	8 0 p. m.	23.77	65	57	23.68	57	56	94	N. W.	3	.04	....	Fog	....	Hidden	...	.....	.....	.....	....	....	Foggy.
	9 0 p. m.	23.78	64	57	23.70	57	56	94	N. W.	4	.08	....	Fog	....	Hidden	...	.....	.....	.....	....	....	Foggy.
	10 0 p. m.	23.78	64	56	23.70	56	56	100	N. W.	4	.08	....	Fog	....	Hidden	...	.....	.....	.....	....	....	Foggy.
	10 39 p. m.	23.78	64	56	23.70	56	55.5	97	W.	5	.12	....	Fog	....	Hidden	...	.....	.....	.....	....	....	Foggy.
	12 0 p. m.	23.77	63	56	23.69	56	55.5	97	N. W.	8	.32	....	Fog	....	Hidden	...	.....	.....	.....	....	....	Foggy.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.45	79	77	27.30	77	70	69	E.	4	.08	....	0	0	Cumulus	3-4	W.	.....	.....	....	....	Fair.
	2 0 p. m.	27.44	81	78	27.29	78	69	61	0	0	0	....	0	0	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	3 0 p. m.	27.43	81	75	27.28	75	70	77	E.	4	.08	....	0	0	Cumulus	1-4	W.	.....	.....	....	....	Fair.
	4 14 p. m.	27.43	79	70	27.28	70	68	90	0	0	0	....	Nimbus	4-4	Hidden	...	.....	3.55 p. m.	.....	.08	....	Light rain.
	5 0 p. m.	27.44	77	69	27.30	69	66	85	0	0	0	....	Stratus	4-4	Hidden	...	.....	.....	4 30 p. m.	.01	....	Cloudy.
	6 0 p. m.	27.43	75	68	27.29	68	66	89	0	0	0	....	Stratus	4-4	Hidden	...	.....	.....	.....	....	....	Cloudy.
	7 0 p. m.	27.43	74	65	27.30	65	64	94	0	0	0	....	Stratus	1-4	0	0	0	.....	.....	....	....	Fair.
	8 0 p. m.	27.44	73	66	27.31	66	64	89	0	0	0	....	Stratus	3-4	0	0	0	.....	.....	....	....	Fair.
	9 0 p. m.	27.44	72	65	27.31	65	64	89	0	0	0	....	Stratus	4-4	Hidden	...	.....	.....	.....	....	....	Cloudy.
	10 0 p. m.	27.43	71	65	27.30	65	64	94	0	0	0	....	Stratus	4-4	Hidden	...	.....	.....	.....	....	....	Cloudy.
	10 39 p. m.	27.42	72	65	27.29	65	63	89	0	0	0	....	Stratus	4-4	Hidden	...	.....	.....	.....	....	....	Cloudy.
	12 0 p. m.	27.41	70	64	27.29	64	63	94	0	0	0	....	Stratus	4-4	Hidden	...	.....	.....	.....	....	....	Cloudy.
Knoxville, Tenn.	2 0 p. m.	29.15	86	85	28.990	84	73	58	S. W.	9	.40	....	Stratus	3-4	Cumulus	2-4	0	.....	.....	....	....	Cloudy.
	4 7 p. m.	29.12	86	87	28.961	86	74	53	N. W.	8	.32	....	0	0	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
	9 0 p. m.	29.12	82	77	28.972	76	73	86	N. W.	2	.02	....	Stratus	4-4	Hidden	...	.....	.....	.....	....	....	Cloudy.
	10 32 p. m.	29.11	81	76	28.964	75	73	90	0	0	0	....	Stratus	4-4	Hidden	...	.....	.....	.....	....	....	Cloudy.

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Meteorological record for August 13, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.76	62	56	23.68	56	56	100	W.	10	.50	....	Fog	.....	Hidden	....	.....	12.25 a. m.	12.40 a. m.	.02	....	Foggy.
	2 0 a. m.	23.75	61	55	23.67	55	55	100	S. W.	10	.50	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.74	61	55	23.66	55	55	100	S. W.	12	.72	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23.72	60	55	23.64	55	55	100	S. W.	12	.72	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23.71	61	55	23.63	55	55	100	S. W.	15	1.12	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	23.70	62	58	23.62	58	57	94	S. W.	12	.72	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23.69	58	54	23.62	54	54	100	S. W.	16	1.28	....	Nimbus	4-4	Hidden	....	.....	6.25 a. m.	.....	.24	....	Heavy rain; thunderstorm from N. to S.
	8 0 a. m.	23.69	56	53	23.62	53	53	100	S. W.	14	.98	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.39	....	Heavy rain.
	9 0 a. m.	23.69	56	53	23.62	53	53	100	S. W.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.34	....	Heavy rain.
	10 0 a. m.	23.69	57	53	23.62	53	53	100	N. W.	11	.60	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.32	....	Heavy rain.
	11 0 a. m.	23.69	56	52	23.62	52	52	100	N. W.	16	1.28	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.41	....	Heavy rain.
	12 0 m.	23.68	57	53	23.61	53	53	100	N. W.	9	.40	183	Nimbus	4-4	Hidden	....	.....	.....	.....	.03	....	Light rain.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.38	70	64	27.26	64	63	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	2 0 a. m.	27.37	70	64	27.25	64	63	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	3 0 a. m.	27.35	69	64	27.23	64	63	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	4 0 a. m.	27.36	69	64	27.24	64	63	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	5 0 a. m.	27.36	69	64	27.24	64	63	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Threatening.
	6 0 a. m.	27.37	69	64	27.25	64	63	94	0	0	0	....	Nimbus	4-4	Hidden	....	.....	5.05 a. m.	.....	.28	....	Light rain.
	7 14 a. m.	27.37	69	65	27.25	65	64	94	E.	1	.01	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.23	....	Heavy rain.
	8 0 a. m.	27.37	69	65	27.25	65	63	89	0	0	0	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.21	....	Heavy rain.
	9 0 a. m.	27.37	70	65	27.25	65	64	94	0	0	0	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.16	....	Heavy rain.
	10 0 a. m.	27.35	70	67	27.23	67	65	89	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	9.30 a. m.	....	....	Cloudy.
	11 0 a. m.	27.36	70	67	27.24	67	65	89	N. E.	1	.01	....	Nimbus	4-4	Hidden	....	.....	10.55 a. m.	.....	.06	....	Heavy rain.
	12 0 m.	27.34	72	71	27.21	71	66	75	N. E.	1	.01	6	Stratus	4-4	Hidden	....	.....	.....	11.10 a. m.	....	....	Cloudy.
Knoxville, Tenn.	7 0 a. m.	29.08	77	72	28.944	71	69	90	N.	6	.18	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	7 7 a. m.	29.08	77	72	28.944	71	69	90	N.	6	.18	....	Stratus	4-4	Hidden	....	.....	In night.	7.15 a. m.	.17	....	Cloudy.
	11 38 a. m.	29.08	80	77	28.937	76	71	76	S. W.	3	.04	121	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.

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Meteorological record for August 13, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction moving from—	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.67	60	53	23.59	53	53	100	N. E.	8	.32	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	12	....	Heavy rain.
	2 0 p. m.	23.65	58	53	23.58	53	53	100	N. W.	12	.72	....	Fog.....	....	Hidden	....	.....	.....	1.15 p. m.	.03	....	Foggy.
	3 0 p. m.	23.64	58	52	23.57	52	52	100	N. W.	12	.72	....	Light fog	....	Cirrus ..	2-4	0	.....	.....	.....	....	Clearing up.
	4 14 p. m.	23.64	59	54	23.57	54	53	93	N. W.	8	.32	....	Hazy	....	Cir.& cu.	2-4	N. W.	.....	.....	.....	....	Fair.
	5 0 p. m.	23.64	59	54	23.57	54	53	93	N. W.	8	.32	....	Hazy	....	Cir.& cu.	3-4	N. W.	.....	.....	.....	....	Cloudy.
	6 0 p. m.	23.66	57	53	23.59	53	52	93	N. W.	12	.72	....	Light fog	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	7 0 p. m.	23.67	60	52	23.59	52	51	93	N. W.	12	.72	....	Fog.....	....	Cirrus ..	1-4	0	.....	.....	.....	....	Foggy.
	8 0 p. m.	23.67	60	51	23.59	51	51	100	N. W.	14	.98	....	Fog.....	....	Hidden .	....	.....	.....	.....	.....	....	Foggy.
	9 0 p. m.	23.68	58	51	23.61	51	51	100	N. W.	10	.50	....	Fog.....	....	Hidden .	....	.....	.....	.....	.....	....	Foggy.
	10 0 p. m.	23.68	59	51	23.61	51	51	100	N. W.	15	1.12	....	Fog.....	....	Hidden .	....	.....	.....	.....	.....	....	Foggy.
	10 39 p. m.	23.66	61	50	23.58	50	50	100	N. W.	14	.98	....	Fog.....	....	Hidden .	....	.....	.....	.....	.....	....	Foggy.
	12 0 p. m.	23.65	63	48	23.57	48	48	100	N. W.	12	.72	....	Fog.....	....	Hidden .	....	.....	.....	.....	.....	....	Foggy.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.32	72	72	27.19	72	65	67	N. E.	1	.01	....	Stratus ...	3-4	Hazy	....	.....	.....	.....	.....	....	Cloudy.
	2 0 p. m.	27.32	75	73	27.18	73	66	67	N. E.	1	.01	....	0	0	Cirrus ..	3-4	S. W.	.....	.....	.....	....	Fair.
	3 0 p. m.	27.31	74	72	27.18	72	68	80	0	0	0	....	0	0	Cirrus ..	3-4	S. W.	.....	.....	.....	....	Fair.
	4 14 p. m.	27.32	74	69	27.19	69	65	80	N. E.	1	.01	....	Stratus ...	2-4	Cirrus ..	2-4	0	.....	.....	.....	....	Cloudy.
	5 0 p. m.	27.33	74	67	27.20	67	65	89	0	0	0	....	Stratus ...	1-4	Cumulus	1-4	W.	.....	.....	.....	....	Fair.
	6 0 p. m.	27.34	72	64	27.21	64	63	94	0	0	0	....	0	0	Cumulus	1-4	0	.....	.....	.....	....	Clear.
	7 0 p. m.	27.35	70	61	27.23	61	60	94	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	8 0 p. m.	27.35	69	60	27.23	60	59	94	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	9 0 p. m.	27.34	68	58	27.22	58	57	94	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	10 0 p. m.	27.33	66	58	27.22	58	57	94	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	10 39 p. m.	27.33	66	57	27.22	57	56	94	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	12 0 p. m.	27.31	64	55	27.20	55	54	93	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
Knoxville, Tenn.	2 0 p. m.	29.05	78	77	28.912	76	69	69	E.	4	.08	....	Stratus ...	2-4	Cumulus	1-4	N. E.	.....	.....	.....	....	Clearing.
	4 7 p. m.	29.04	82	85	28.892	84	72	53	W.	7	.24	....	0	0	Cumulus	2-4	N. E.	8.00 a. m.	9.00 a. m.	.04	....	Fair.
	9 0 p. m.	29.08	79	73	28.939	72	68	80	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	10 32 p. m.	29.07	77	71	28.934	70	66	79	N.	8	.32	....	0	0	0	0	0	.....	.....	.....	....	Clear.

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Meteorological record for August 14, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.64	62	48	23.56	48	48	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 a. m.	23.63	62	47	23.55	47	47	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3 0 a. m.	23.63	64	46	23.55	46	46	100	N. W.	6	.24	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 0 a. m.	23.62	61	45	23.54	45	44	92	N. W.	8	.32	....	Light fog	....	Cumulus	1-4	0	.....	.....	.....	....	Fair.
	5 0 a. m.	23.61	60	46	23.53	46	45.5	96	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 a. m.	23.61	59	46	23.54	46	46	100	N. W.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	23.62	57	46	23.55	46	45	92	N. W.	9	.40	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 a. m.	23.62	56	46	23.55	46	46	100	N. W.	11	.60	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.63	56	46	23.56	46	46	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 a. m.	23.63	56	46	23.56	46	46	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	11 0 a. m.	23.62	57	47	23.55	47	47	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	12 0 m ..	23.61	59	48	23.54	48	47	93	N. W.	10	.50	239	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
Base of Mount Mitchell, N. C..	1 0 a. m.	27.31	62	53	27.21	53	52	93	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	2 0 a. m.	27.30	61	52	27.20	52	51	93	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3 0 a. m.	27.30	59	51	27.20	51	50	93	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 0 a. m.	27.31	58	51	27.22	51	50	93	N. E.	1	.01	....	0	0	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	5 0 a. m.	27.30	57	53	27.21	53	52	93	N. E.	1	.01	....	Stratus ...	3-4	Hazy ...	....	.....	.....	.....	.....	....	Cloudy.
	6 0 a. m.	27.31	58	58	27.22	58	56	88	N. E.	1	.01	....	Stratus ...	3-4	0	0	0	.....	.....	.....	....	Fair.
	7 14 a. m.	27.30	61	70	27.20	70	65	75	N. E.	1	.01	....	0	0	Cumulus	2-4	N. W.	.....	.....	.....	....	Fair.
	8 0 a. m.	27.31	65	67	27.20	67	61	69	N. E.	1	.01	....	Stratus ...	4-4	Hidden ...	....	.....	.....	.....	.....	....	Cloudy.
	9 0 a. m.	27.31	67	68	27.19	68	60	60	N. E.	4	.08	....	Stratus ...	2-4	Cumulus	2-4	N. W.	.....	.....	.....	....	Cloudy.
	10 0 a. m.	27.31	68	68	27.19	68	61	65	N. E.	1	.01	....	Stratus ...	2-4	Cumulus	2-4	N. W.	.....	.....	.....	....	Cloudy.
	11 0 a. m.	27.30	69	67	27.18	67	60	64	N. E.	1	.01	....	0	0	Cumulus	2-4	N. W.	.....	.....	.....	....	Fair.
	12 0 m ..	27.29	71	70	27.17	70	62	61	N. E.	1	.01	12	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.07	74	66	28.942	65	62	53	N.	3	.04	....	Hazy	....	0	0	0	.....	.....	.....	....	Fair.
	9 9 a. m.	29.07	74	66	28.942	65	62	53	N.	3	.04	....	Hazy	....	0	0	0	.....	.....	.....	....	Fair.
	11 32 a. m.	29.07	76	75	28.937	74	62	47	N.	12	.72	123	0	0	Cumulus	2-4	N.	.....	.....	.....	....	Fair.

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Meteorological record for August 11, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.61	62	52	23.53	52	51	93	W.	8	.32	....	Hazy	....	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	2 0 p. m.	23.60	61	51	23.52	51	50	93	N. W.	12	.72	....	Light fog	....	Cumulus	4-4	N. W.	.....	.....	.....	.....	Cloudy.
	3 0 p. m.	23.60	59	52	23.53	52	50	86	N. W.	8	.32	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	.....	.....	Cloudy.
	4 14 p. m.	23.59	59	50	23.52	50	49	93	N. W.	14	.98	....	Hazy	....	Cir. & cu	4-4	N. W.	.....	.....	.....	.....	Cloudy.
	5 0 p. m.	23.59	59	48	23.52	48	47	93	W.	16	1.28	....	Hazy	....	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	6 0 p. m.	23.60	58	47	23.53	47	47	100	W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	7 0 p. m.	23.60	57	46	23.53	46	46	100	W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	8 0 p. m.	23.60	58	46	23.53	46	46	100	W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	9 0 p. m.	23.60	60	46	23.53	46	46	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	10 0 p. m.	23.61	59	45	23.54	45	45	100	N. W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	10 39 p. m.	23.62	58	44	23.55	44	44	100	N. W.	14	.98	....	Light fog	....	0	0	0	.....	.....	.....	.....	Fair.
	12 0 p. m.	23.60	58	44	23.53	44	44	100	N. W.	12	.72	....	Light fog	....	0	0	0	.....	.....	.....	.....	Fair.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.29	72	70	27.16	70	62	61	N.	1	.01	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	.....	.....	Fair.
	2 0 p. m.	27.29	73	70	27.16	70	62	61	N.	4	.08	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	.....	Fair.
	3 0 p. m.	27.29	72	65	27.16	65	59	68	N.	4	.08	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	.....	Fair.
	4 14 p. m.	27.29	70	64	27.17	64	61	84	0	0	0	....	Hazy	....	Cumulus	4-4	N. W.	.....	.....	.....	.....	Cloudy.
	5 0 p. m.	27.29	70	63	27.17	63	59	78	0	0	0	....	Stratus	3-4	Cumulus	1-4	N. W.	.....	.....	.....	.....	Cloudy.
	6 0 p. m.	27.29	68	62	27.17	62	57	72	N. E.	1	.01	....	Stratus	3-4	Cumulus	1-4	N. E.	.....	.....	.....	.....	Cloudy.
	7 0 p. m.	27.30	67	57	27.18	57	55	88	0	0	0	....	Stratus	1-4	0	0	0	.....	.....	.....	.....	Fair.
	8 0 p. m.	27.30	66	61	27.20	61	56	71	0	0	0	....	Stratus	1-4	0	0	0	.....	.....	.....	.....	Fair.
	9 0 p. m.	27.29	66	58	27.18	58	56	88	N.	1	.01	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	10 0 p. m.	27.28	64	57	27.17	57	55	87	N.	1	.01	....	Stratus	1-4	0	0	0	.....	.....	.....	.....	Clear.
	10 39 p. m.	27.27	64	59	27.16	59	56	82	0	0	0	....	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	Cloudy.
	12 0 p. m.	27.26	63	57	27.15	57	55	87	N.	1	.01	....	0	0	Cumulus	1-4	N.	.....	.....	.....	.....	Fair.
Knoxville, Tenn.	2 0 p. m.	29.06	77	78	28.924	77	64	46	N. W.	16	1.28	....	0	0	Cumulus	4-4	N.	.....	.....	.....	.....	Cloudy.
	4 7 p. m.	29.04	77	77	28.904	76	63	45	N.	12	.72	....	0	0	Cumulus	3-4	N.	.....	.....	.....	.....	Cloudy.
	9 0 p. m.	29.03	75	71	28.900	70	63	66	N.	3	.04	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	10 32 p. m.	29.04	73	67	28.915	66	63	84	N.	2	.02	....	0	0	0	0	0	.....	.....	.....	.....	Clear.

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Meteorological record for August 15, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.60	57	45	23.53	45	45	100	N. W.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 a. m.	23.60	56	45	23.53	45	45	100	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3 0 a. m.	23.59	56	44	23.52	44	44	100	N. W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 0 a. m.	23.58	56	43	23.51	43	43	100	N. W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 a. m.	23.58	57	43	23.51	43	43	100	N. W.	18	1.62	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 a. m.	23.58	57	44	23.51	44	44	100	N. W.	15	1.12	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	23.59	57	45	23.52	45	45	100	N. W.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 a. m.	23.60	58	47	23.53	47	47	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.60	58	48	23.53	48	48	100	N. W.	8	.32	....	Fog	....	Hidden	....	.....	8.30 a. m.	8.50 a. m.	.04	....	Foggy.
	10 0 a. m.	23.62	64	49	23.54	49	49	100	N. W.	4	.08	....	Nimbus	....	Hidden	....	.....	9.50 a. m.	.....	.01	....	Light rain.
	11 0 a. m.	23.62	61	51	23.54	51	51	100	N. W.	2	.02	....	Fog	4-4	Hidden	....	.....	.....	10.10 a. m.	.01	....	Foggy.
	12 0 m ..	23.63	63	53	23.55	53	52.5	96	N. W.	3	.04	280	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.26	63	56	27.15	56	54	87	0	0	0	....	Stratus	....	Cumulus	1-4	0	.....	.....	.....	....	Fair.
	2 0 a. m.	27.25	62	57	27.15	57	55	87	N.	4	.08	....	Stratus	2-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	3 0 a. m.	27.26	62	59	27.16	59	57	88	N.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	4 0 a. m.	27.27	63	60	27.16	60	58	88	0	0	0	....	Stratus	4-4	Cumulus	1-4	0	.....	.....	.....	....	Light rain.
	5 0 a. m.	27.30	63	61	27.19	61	59	88	N.	2	.02	....	Stratus	2-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	6 0 a. m.	27.30	64	63	27.19	63	61	89	N.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	7 14 a. m.	27.33	66	64	27.22	64	61	83	N.	1	.01	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	8 0 a. m.	27.32	66	64	27.22	64	61	83	N.	1	.01	....	Stratus	4-4	Hidden	....	.....	7.10 a. m.	.....	.....	....	Cloudy.
	9 0 a. m.	27.31	68	67	27.19	67	62	74	N.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	7.38 a. m.	.02	....	Cloudy.
	10 0 a. m.	27.30	69	67	27.18	67	62	74	N.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Fair.
	11 0 a. m.	27.30	69	67	27.18	67	62	74	N.	1	.01	....	Stratus	2-4	Cumulus	2-4	W.	.....	.....	.....	....	Fair.
	12 0 m ..	27.30	69	67	27.18	67	62	74	N.	1	.01	....	0	0	Cumulus	4-4	W.	.....	.....	.....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.04	71	67	28.920	66	63	84	N.	3	.04	....	Fog	....	Cumulus	1-4	N. E.	.....	.....	.....	....	Fair.
	7 7 a. m.	29.04	71	67	28.920	66	63	84	N.	3	.04	....	Fog	....	Cumulus	1-4	N. E.	.....	.....	.....	....	Fair.
	11 39 a. m.	29.05	76	76	28.917	75	65	56	S.	3	.04	127	0	0	Cumulus	3-4	N. E.	.....	.....	.....	....	Cloudy.

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Meteorological record for August 15, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 p. m.	23.63	63	55	23.55	55	54	93	S. W.	4	.08	....	Hazy	....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
	2 0 p. m.	23.63	64	58	23.55	58	57	94	S. W.	4	.08	....	Hazy	....	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy.
	3 0 p. m.	23.65	65	59	23.56	59	58	94	S. W.	4	.08	....	Hazy	....	Cumulus	3-4	S. W.	.....	.....	....	....	Cloudy.
	4 14 p. m.	23.64	64	57	23.56	57	56	94	W.	8	.32	....	Hazy	....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
	5 0 p. m.	23.63	65	55	23.54	55	54	93	W.	6	.18	....	Hazy	....	Cir. & cu	3-4	W.	.....	.....	....	....	Cloudy.
	6 0 p. m.	23.63	63	53	23.55	53	52	93	W.	10	.50	....	Hazy	....	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	7 0 p. m.	23.64	62	50	23.56	50	49	93	W.	8	.32	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	8 0 p. m.	23.64	63	48	23.56	48	47	93	W.	8	.32	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	9 0 p. m.	23.64	62	48	23.56	48	47	92	W.	6	.18	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	10 0 p. m.	23.65	63	48	23.57	48	47	93	S. W.	8	.32	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	10 39 p. m.	23.66	62	48	23.58	48	46	85	N. W.	8	.32	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	12 0 p. m.	23.65	62	49	23.57	49	48	93	W.	8	.32	....	Light fog	....	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
Base of Mount Mitchell, N. C..	1 0 p. m.	27.30	70	69	27.18	69	62	65	N.	4	.08	....	Stratus ...	1-4	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	2 0 p. m.	27.29	71	72	27.17	72	65	69	N.	1	.01	....	0	0	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	3 0 p. m.	27.30	75	71	27.16	71	64	66	N.	1	.01	....	0	0	Cumulus	3-4	W.	.....	.....	....	....	Fair.
	4 14 p. m.	27.30	74	69	27.17	69	64	75	N.	1	.01	....	0	0	Cumulus	3-4	W.	.....	.....	....	....	Fair.
	5 0 p. m.	27.32	73	68	27.19	68	64	79	0	0	0	....	0	0	Cumulus	3-4	N.	.....	.....	....	....	Fair.
	6 0 p. m.	27.30	73	68	27.17	68	64	79	0	0	0	....	0	0	Cumulus	3-4	N. W.	.....	.....	....	....	Fair.
	7 0 p. m.	27.31	71	64	27.18	64	62	89	0	0	0	....	Hazy	....	Hazy	....	.....	.....	.....	....	....	Clear.
	8 0 p. m.	27.32	69	60	27.20	60	59	94	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear.
	9 0 p. m.	27.34	67	57	27.22	57	56	94	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear.
	10 0 p. m.	27.33	66	56	27.22	56	55	93	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear.
	10 39 p. m.	27.34	65	55	27.23	55	53	87	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear.
	12 0 p. m.	27.34	63	53	27.23	53	52	93	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear.
Knoxville, Tenn.	2 0 p. m.	29.03	78	79	28.892	78	66	51	W.	3	.04	....	0	0	Cumulus	2-4	N. E.	.....	.....	....	....	Fair.
	4 7 p. m.	29.02	80	82	28.877	81	67	44	W.	9	.40	....	0	0	Cumulus	2-4	N. E.	.....	.....	....	....	Fair.
	9 0 p. m.	29.01	77	71	28.874	70	67	83	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear.
	10 32 p. m.	29.01	75	69	28.880	68	66	90	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear.

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Meteorological record for August 16, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.66	62	48	23.58	48	47	93	S. W.	12	.72	....	0	0	Cirrus ..	2-4	0	.....	.....	.....	.....	Fair.
	2 0 a. m.	23.65	62	47	23.57	47	46	92	S. W.	12	.72	....	Light fog	.....	Cirrus ..	2-4	0	.....	.....	.....	.....	Fair.
	3 0 a. m.	23.64	60	48	23.57	48	47	93	S. W.	14	.98	....	Light fog	.....	Cirrus ..	2-4	0	.....	.....	.....	.....	Fair.
	4 0 a. m.	23.63	59	48	23.56	48	47	93	S. W.	10	.50	....	Hazy	.....	Cumulus	1-4	W.	.....	.....	.....	.....	Fair.
	5 0 a. m.	23.65	60	48	23.58	48	47	93	W.	12	.72	....	Light fog	.....	Cir. & cu	3-4	S. W.	.....	.....	.....	.....	Cloudy.
	6 0 a. m.	23.66	60	48	23.59	48	47	93	S. W.	10	.50	....	Light fog	.....	Cumulus	2-4	S. W.	.....	.....	.....	.....	Fair.
	7 14 a. m.	23.67	52	52	23.61	52	50	86	S. W.	8	.32	....	Hazy	.....	Cumulus	1-4	W.	.....	.....	.....	.....	Fair.
	8 0 a. m.	23.69	58	55	23.62	55	53	87	S. W.	12	.72	...	Hazy	.....	Cumulus	1-4	W.	.....	.....	.....	.....	Fair.
	9 0 a. m.	23.71	58	57	23.64	57	55	87	S. W.	10	.50	....	Hazy	.....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	10 0 a. m.	23.72	60	60	23.64	60	56	77	S. W.	9	.40	....	Hazy	.....	Cumulus	3-4	S. W.	.....	.....	.....	.....	Cloudy.
	11 0 a. m.	23.73	61	59	23.65	59	56	82	S. W.	6	.18	....	Hazy	.....	Cumulus	3-4	S. W.	.....	.....	.....	.....	Cloudy.
	12 0 m.	23.73	64	62	23.65	62	58	77	S. W.	5	.12	203	Hazy	.....	Cumulus	4-4	S. W.	.....	.....	.....	.....	Cloudy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.33	62	53	27.23	53	52	93	0	0	0	....	Fog.....	.....	Hidden .	.....	.....	.....	.....	.....	.....	Foggy.
	2 0 a. m.	27.32	61	53	27.22	53	52	93	0	0	0	....	Fog.....	.....	Hidden .	.....	.....	.....	.....	.....	.....	Foggy.
	3 0 a. m.	27.32	60	53	27.22	53	51	86	0	0	0	....	Fog.....	.....	Hidden .	.....	.....	.....	.....	.....	.....	Foggy.
	4 0 a. m.	27.31	59	51	27.21	51	49	86	0	0	0	....	Fog.....	.....	Hidden .	.....	.....	.....	.....	.....	.....	Foggy.
	5 0 a. m.	27.32	58	50	27.23	50	49	93	0	0	0	....	Fog.....	.....	Cumulus	1-4	W.	.....	.....	.....	.....	Foggy.
	6 0 a. m.	27.33	57	49	27.24	49	48	93	0	0	0	....	Hazy	.....	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
	7 14 a. m.	27.34	57	56	27.25	56	54	87	0	0	0	....	0	0	Cumulus	1-4	W.	.....	.....	.....	.....	Clear.
	8 0 a. m.	27.35	59	62	27.25	62	59	83	0	0	0	....	0	0	Cumulus	1-4	W.	.....	.....	.....	.....	Clear.
	9 0 a. m.	27.37	63	71	27.26	71	64	66	N.	1	.01	....	0	0	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
	10 0 a. m.	27.38	68	73	27.26	73	66	67	0	0	0	....	0	0	Cumulus	1-4	W.	.....	.....	.....	.....	Fair.
	11 0 a. m.	27.38	72	75	27.25	75	68	68	0	0	0	....	Hazy	.....	Cumulus	1-4	W.	.....	.....	.....	.....	Fair.
	12 0 m.	27.39	75	73	27.25	73	67	72	N.	1	.01	7	Hazy	.....	Cumu.us	2-4	W.	.....	.....	.....	.....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.06	71	66	28.940	65	62	83	S.	2	.02	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	7 7 a. m.	29.06	71	66	28.940	65	62	83	S.	2	.02	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	11 32 a. m.	29.10	78	79	28.902	78	60	61	S.	3	.04	73	0	0	Cumulus	4-4	0	.....	.....	.....	.....	Cloudy.

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Meteorological record for August 16, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.73	65	60	23.64	60	56	77	S.W.	4	.08	....	Hazy	....	Cumulus	4-4	S.W.	.....	.....	.....	....	Cloudy.
	2 0 p. m.	23.73	63	62	23.65	62	57	72	S.W.	4	.08	....	Hazy	....	Cumulus	3-4	S.W.	.....	.....	.....	....	Cloudy.
	3 0 p. m.	23.72	64	59	23.64	59	57	88	S.W.	4	.08	....	Hazy	....	Cumulus	4-4	S.W.	.....	.....	.....	....	Cloudy.
	4 14 p. m.	23.71	64	56	23.63	56	54	87	N. W.	1	.01	...	Hazy	....	Cumulus	4-4	W.	3.10 p. m.	4.03 p. m.	.02	....	Cloudy.
	5 0 p. m.	23.73	65	56	23.64	56	55	93	W.	2	.02	....	Light fog	....	Cumulus	4-4	W.	.....	.....	.....	....	Cloudy.
	6 0 p. m.	23.72	62	56	23.64	56	55	93	S.W.	2	.02	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 0 p. m.	23.74	66	54	23.65	54	54	100	S.W.	8	.32	....	Fog	....	Hidden	....	.....	6.15 p. m.	6.40 p. m.	.02	....	Foggy.
	8 0 p. m.	23.75	65	53	23.66	53	53	100	S.W.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 p. m.	23.76	67	54	23.67	54	54	100	S.W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 p. m.	23.77	66	54	23.68	54	54	100	S.W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 39 p. m.	23.76	66	53	23.67	53	53	100	S.W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	12 0 p. m.	23.75	65	53	23.67	53	53	100	W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.38	75	75	27.24	75	63	68	N.	1	.01	....	Hazy	....	Cumulus	3-4	W.	.....	.....	.....	....	Fair.
	2 0 p. m.	27.38	74	72	27.25	72	66	71	N.	1	.01	....	Hazy	....	Cumulus	4-4	W.	.....	.....	.....	....	Cloudy.
	3 0 p. m.	27.37	75	73	27.23	73	66	67	0	0	0	....	Hazy	....	Cumulus	4-4	W.	.....	.....	.....	....	Cloudy.
	4 14 p. m.	27.34	75	72	27.20	72	68	80	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	5 0 p. m.	27.30	75	70	27.16	70	66	71	N.	4	.08	...	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	6 0 p. m.	27.39	74	68	27.26	68	66	89	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	7 0 p. m.	27.40	73	66	27.27	66	65	94	0	0	0	....	Nimbus	4-4	Hidden	....	.....	6.55 a. m.	.....	.....	....	Light rain.
	8 0 p. m.	27.41	72	65	27.28	65	63	89	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	7.10 p. m.	Blk	....	Cloudy.
	9 0 p. m.	27.43	71	64	27.30	64	63	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	10 0 p. m.	27.43	71	64	27.30	64	63	94	0	0	0	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	10 39 p. m.	27.43	71	64	27.30	64	63	94	0	0	0	....	Stratus	3-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	12 0 p. m.	27.42	70	63	27.30	63	62	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
Knoxville, Tenn.	2 0 p. m.	29.07	79	81	28.929	80	70	58	W.	3	.04	....	0	0	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	4 7 p. m.	29.07	81	83	28.924	82	69	49	W.	8	.32	....	0	0	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	9 0 p. m.	29.08	76	73	28.947	72	69	85	N.	3	.04	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	10 32 p. m.	29.08	74	73	28.952	72	68	80	N.	2	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.

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Meteorological record for August 17, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.74	64	52	23.66	52	52	100	S.	10	.50	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 a. m.	23.74	63	53	23.66	53	53	100	S.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3 0 a. m.	23.74	63	53	23.66	53	53	100	S. E.	9	.40	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 0 a. m.	23.75	63	53	23.67	53	53	100	E.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 a. m.	23.75	62	53	23.67	53	53	100	S. E.	5	.12	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 a. m.	23.76	64	53	23.68	53	53	100	E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	23.78	66	54	23.69	54	54	100	E.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 a. m.	23.80	65	58	23.71	58	57	94	S. E.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 a. m.	23.81	65	56	23.72	56	55	93	S.	5	.12	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 a. m.	23.81	67	59	23.72	59	57	87	S. W.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	11 0 a. m.	23.81	66	57	23.74	57	56	94	S. E.	4	.08	....	Nimbus	4-4	Hidden	....	.....	10.53 a. m.	.....	.01	....	Light rain.
	12 0 m ..	23.80	66	62	23.71	62	60	88	S.	6	.18	138	Fog	....	Cumulus	4-4	S.	.....	11.08 a. m.	.01	....	Cloudy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.42	70	62	27.30	62	61	94	0	0	0	....	0	0	Cirrus ..	2-4	W.	.....	.....	.....	....	Fair.
	2 0 a. m	27.42	68	60	27.30	60	59	94	0	0	0	....	Stratus ...	2-4	Cir.-cum	2-4	W.	.....	.....	.....	....	Cloudy.
	3 0 a. m.	27.42	68	60	27.30	60	59	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	4 0 a. m.	27.41	67	60	27.30	60	59	94	0	0	0	....	Stratus ...	3-4	Cir.-cum	1-4	0	.....	.....	.....	....	Cloudy.
	5 0 a. m.	27.42	66	60	27.31	60	59	94	0	0	0	....	Stratus ...	2-4	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	6 0 a. m.	27.43	65	60	27.32	60	59	94	0	0	0	....	Stratus ...	1-4	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	7 14 a. m.	27.44	66	66	27.33	66	64	89	0	0	0	....	Stratus ...	1-4	Cir.-cum	2-4	W.	.....	.....	.....	....	Fair.
	8 0 a. m.	27.46	68	69	27.34	69	66	85	N.	1	.01	....	Stratus ...	1-4	Cir.-cum	2-4	W.	.....	.....	.....	....	Fair.
	9 0 a. m.	27.46	70	76	27.34	76	68	64	N. E.	2	.02	....	0	0	Cumulus	3-4	S. W.	.....	.....	.....	....	Fair.
	10 0 a. m.	27.48	73	74	27.35	74	67	68	0	0	0	....	0	0	Cumulus	2-4	S.	.....	.....	.....	....	Fair.
	11 0 a. m.	27.47	75	74	27.33	74	68	72	0	0	0	....	Nimbus ...	1-4	Cumulus	3-4	S.	11.00 a. m.	.....	.....	....	Light rain.
	12 0 m ..	27.45	77	77	27.31	77	90	69	S.	4	.08	11	0	0	Cumulus	2-4	S.	.....	11.15 a. m.	Blk	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.12	73	72	28.995	71	68	85	N.	2	.02	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	7 7 a. m.	29.12	73	72	28.995	71	68	85	N.	2	.02	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	11 32 a. m.	29.14	86	85	28.989	84	60	44	S.	8	.32	91	0	0	Cumulus	1-4	S. W	.....	.....	.....	....	Fair.

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Meteorological record for August 17, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Comm'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 p. m.	23.76	67	62	23.71	62	60	88	S.	5	.12	....	Fog	..	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 p. m.	23.78	66	58	23.69	58	58	100	S. E.	4	.08	....	Nimbus	4-4	Hidden	....	.....	1.32 p. m.	.....	.13	....	Heavy rain; thunder-storm in S.
	3 0 p. m.	23.76	64	58	23.68	58	58	100	S. W.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.10	....	Light rain.
	4 14 p. m.	23.75	64	61	23.67	61	60	94	S. W.	12	.72	....	Light fog	....	Cir. & cu	3-4	S. W.	.....	3.25 p. m.	.06	....	Clearing.
	5 0 p. m.	23.76	63	60	23.68	60	59	94	S. W.	10	.50	....	Light fog	....	Cumulus	4-4	S. W.	.....	.....	.....	....	Cloudy.
	6 0 p. m.	23.75	62	59	23.67	59	58	94	S. W.	10	.50	....	Light fog	....	Cir. & cu	3-4	S. W.	.....	.....	.....	....	Cloudy.
	7 0 p. m.	23.76	60	55	23.68	55	54	93	W.	12	.72	....	0	0	Cumulus	2-4	.....	.....	.....	.....	....	Fair; heat-lightn'g.
	8 0 p. m.	23.78	67	55	23.69	55	54	93	S. W.	4	.08	....	Light fog	....	Cumulus	3-4	.....	.....	.....	.....	....	Cloudy.
	9 0 p. m.	23.79	66	55	23.70	55	55	100	S. W.	5	.12	....	Nimbus	4-4	Hidden	....	.....	8.35 p. m.	.....	.08	....	Light rain.
	10 0 p. m.	23.79	64	54	23.71	54	54	100	S.	10	.50	....	Fog	....	Hidden	....	.....	.....	9.11 p. m.	.01	....	Foggy.
	10 39 p. m.	23.79	64	54	23.71	54	54	100	S.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	12 0 p. m.	23.78	62	54	23.70	54	54	100	S. W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
Base of Mount Mitchell, N. C..	1 0 p. m.	27.45	79	76	27.30	76	70	73	S.	1	.01	....	0	0	Cumulus	4-4	S.	.....	.....	.....	....	Cloudy.
	2 0 p. m.	27.45	77	69	27.31	69	67	90	S.	1	.01	....	Nimbus	4-4	Hidden	....	.....	1.40 p. m.	.....	.24	....	Light rain.
	3 0 p. m.	27.41	77	72	27.27	72	68	82	S.	1	.01	....	Stratus	3-4	Cumulus	2-4	S.	.....	2.45 p. m.	.04	....	Cloudy.
	4 14 p. m.	27.41	78	72	27.27	72	68	80	S.	1	.01	....	0	0	Cumulus	3-4	S.	.....	.....	.....	....	Cloudy.
	5 0 p. m.	27.41	77	71	27.27	71	67	80	0	0	0	....	0	0	Cumulus	3-4	S.	.....	.....	.....	....	Fair.
	6 0 p. m.	27.42	78	70	27.28	70	68	90	0	0	0	....	0	0	Cir. & cu	2-4	S.	.....	.....	.....	....	Fair.
	7 0 p. m.	27.43	75	67	27.29	67	65	89	0	0	0	....	0	0	Hazy	....	.....	.....	.....	.....	....	Fair.
	8 0 p. m.	27.46	73	65	27.33	65	64	94	0	0	0	....	Stratus	1-4	0	0	0	.....	.....	.....	....	Fair.
	9 0 p. m.	27.46	72	64	27.33	64	63	89	0	0	0	....	Nimbus	1-4	0	0	0	8.38 p. m.	.....	.....	....	Light rain.
	10 0 p. m.	27.45	71	64	27.32	64	63	94	0	0	0	....	0	0	0	0	0	.....	9.05 p. m.	Blk	....	Clear.
	10 39 p. m.	27.45	70	63	27.33	63	62	94	0	0	0	....	Stratus	1-4	0	0	0	.....	.....	.....	....	Fair.
	12 0 p. m.	27.44	69	61	27.33	61	60	94	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
Knoxville, Tenn .	2 0 p. m.	29.10	84	87	28.946	86	69	40	S. W.	12	.72	....	0	0	Cir.-cum	1-4	S. W.	.....	.....	.....	....	Fair.
	4 7 p. m.	29.07	84	89	28.916	88	70	37	S. W.	12	.72	....	0	0	Cir. & cu	1-4	S. W.	.....	.....	.....	....	Fair.
	9 0 p. m.	29.10	79	77	28.959	76	69	69	N. E.	8	.32	....	Stratus	1-4	0	0	0	.....	.....	.....	....	Fair.
	10 32 p. m.	29.10	80	75	28.957	74	69	76	N.	3	.04	....	0	0	0	0	0	.....	.....	.....	....	Clear.

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Meteorological record for August 18, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM.		Corrected barometer.	HYGROM.		Relative humidity.	WIND.				LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
			Attached.	Exposed.		Dry bulb.	Wet bulb.		Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from—)	Commen'd.	Ended.			
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.75	55	55	23.67	55	55	100	S.	12	.72	...	Fog	...	Hidden	...	...	1.10 a. m.	...	...	...	Foggy.
	2 0 a. m.	23.74	60	53	23.66	53	53	100	S.	16	1.28	...	Fog	...	Hidden	...	...	...	1.55 a. m.	.23	...	Foggy.
	3 0 a. m.	23.74	60	54	23.66	54	54	100	S.W.	16	1.28	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	4 0 a. m.	23.73	61	53	23.65	53	53	100	S.W.	18	1.62	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	5 0 a. m.	23.74	60	53	23.66	53	53	100	S.W.	18	1.62	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	6 0 a. m.	23.75	61	54	23.67	54	54	100	S.W.	16	1.28	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	7 14 a. m.	23.76	61	55	23.68	55	54	93	S.W.	13	.84	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	8 0 a. m.	23.78	65	57	23.69	57	56	94	S.W.	11	.60	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	9 0 a. m.	23.80	65	61	23.71	61	59	88	S.W.	6	.18	...	Light fog	...	Cir. & cn.	3-4	W.	...	...	...	...	Cloudy.
	10 0 a. m.	23.81	64	61	23.73	61	59	88	S.W.	7	.24	...	Light fog	...	Cumulus	4-4	W.	...	...	...	...	Cloudy.
	11 0 a. m.	23.80	64	61	23.72	61	59	88	S.W.	4	.08	...	Nimbus	...	Hidden	...	...	10.40 a. m.	...	.02	...	Light rain.
	12 0 m.	23.78	63	63	23.70	63	60	83	S.W.	6	.18	246	Haze & fog	...	Cumulus	4-4	S.W.	...	11.06 a. m.	.01	...	Cloudy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.43	61	61	27.31	61	60	94	0	0	0	...	Stratus	2-4	0	0	0	...	...	...	...	Fair.
	2 0 a. m.	27.41	67	62	27.29	62	61	94	0	0	0	...	Nimbus	4-4	Hidden	...	...	1.35 a. m.	...	.22	...	Light rain.
	3 0 a. m.	27.41	67	62	27.29	62	61	94	0	0	0	...	Stratus	3-4	Hidden	...	...	...	2.20 a. m.	.03	...	Cloudy.
	4 0 a. m.	27.42	67	62	27.30	62	61	94	0	0	0	...	Stratus	4-4	Hidden	...	...	...	...	...	...	Cloudy.
	5 0 a. m.	27.42	67	63	27.30	63	62	94	0	0	0	...	Nimbus	4-4	Hidden	...	...	4.35 a. m.	...	.04	...	Light rain.
	6 0 a. m.	27.44	68	63	27.32	63	63	94	0	0	0	...	Stratus	4-4	Hidden	...	...	...	5.10 a. m.	...	...	Cloudy.
	7 14 a. m.	27.46	68	63	27.34	63	62	88	0	0	0	...	Stratus	2-4	Cumulus	1-4	W.	...	...	...	...	Cloudy.
	8 0 a. m.	27.46	70	67	27.33	67	66	95	0	0	0	...	Stratus	4-4	Hidden	...	...	...	...	...	...	Cloudy.
	9 0 a. m.	27.46	71	70	27.33	70	67	85	0	0	0	...	Stratus	2-4	Cirrus	1-4	S.W.	...	...	...	...	Cloudy.
	10 0 a. m.	27.46	72	73	27.33	73	68	76	N. E.	0	0	...	Stratus	1-4	Cumulus	3-4	S.W.	...	...	...	...	Cloudy.
	11 0 a. m.	27.43	73	72	27.32	72	68	80	0	0	0	...	Nimbus	3-4	Cumulus	1-4	S.W.	10.58 a. m.	...	...	...	Light rain.
	12 0 m.	27.44	75	75	27.30	75	69	72	S.	1	.01	10	Stratus	1-4	Cumulus	2-4	S.W.	...	11.05 a. m.	B'lk	...	Cloudy.
Knoxville, Tenn.	7 0 a. m.	28.10	70	71	28.02	70	67	85	E.	3	.04	...	0	0	Cumulus	4-4	W.	...	...	...	...	Cloudy.
	7 7 a. m.	28.16	76	71	28.07	70	67	85	E.	3	.04	...	0	0	Cumulus	4-4	W.	...	...	...	...	Cloudy.
	11 39 a. m.	28.18	76	65	28.04	64.5	64	97	N.	20	2.00	152	Nimbus	4-4	Hidden	...	...	...	...	...	...	Heavy rain.

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Meteorological record for August 18, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 p. m.	23.76	61	62	23.68	62	59	83	S.W.	10	.50	....	Hazy	....	Cumulus	3-4	S.W.	.....	.....	....	....	Cloudy.
	2 0 p. m.	23.77	64	56	23.69	56	55	94	N.W.	4	.08	....	Nimbus...	4-4	Hidden .		.....	2.00 p. m.	.....	....	....	Light rain, thunder-storm.
	3 0 p. m.	23.74	59	50	23.67	50	50	100	N.W.	22	2.42	...	Nimbus...	4-4	Hidden .	....	.....	.....	.....	.24	....	Light rain.
	4 14 p. m.	23.76	62	52	23.68	52	52	100	W.	12	.72	....	Nimbus...	1-4	Cumulus	3-4	0	.....	.....	.13	....	Light rain.
	5 0 p. m.	23.75	61	52	23.67	52	52	100	W.	12	.72	....	Nimbus...	3-4	Cumulus	1-4	0	.....	.....	.05	....	Light rain.
	6 0 p. m.	23.73	56	52	23.66	52	51	93	W.	8	.32	....	Hazy	....	Cumulus	4-4	0	.....	5.15 p. m.	.02	...	Cloudy.
	7 0 p. m.	23.75	63	53	23.68	53	49	73	W.	6	.18	....	0	0	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	8 0 p. m.	23.78	64	52	23.70	52	50	86	W.	8	.32	....	0	0	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	9 0 p. m.	23.77	67	52	23.68	52	50	86	W.	1	.01	....	0	0	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	10 0 p. m.	23.77	65	52	23.68	52	49	79	W.	2	.02	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	10 39 p. m.	23.78	64	52	23.70	52	49	79	W.	2	.02	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	12 0 p. m.	23.77	65	52	23.68	52	50	86	W.	2	.02	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
Base of Mount Mitchell, N. C..	1 0 p. m.	27.43	76	75	27.29	75	69	72	S.W.	1	.01	....	Stratus ...	3-4	Cumulus	1-4	S.W.	.....	.....	....	....	Cloudy.
	2 0 p. m.	27.45	76	69	27.31	69	66	85	N.	4	.08	....	Stratus ...	4-4	Hidden .	....	.....	.....	.....	....	....	Threatening.
	3 0 p. m.	27.42	73	64	27.29	64	63	94	0	0	0	....	Stratus ..	4-4	Hidden .	....	.....	2.10 p. m.	.....	.54	....	Light rain.
	4 14 p. m.	27.43	72	65	27.30	65	64	94	0	0	0	....	Nimbus...	4-4	Hidden .	....	.....	.....	.....	.08	....	Light rain.
	5 0 p. m.	27.43	71	65	27.30	65	63	89	0	0	0	....	Nimbus...	4-4	Hidden .	....	.....	.....	.....	.03	....	Light rain.
	6 0 p. m.	27.42	70	65	27.30	64	63	94	S.	1	.01	....	Stratus ...	4-4	Hidden .	....	.....	.....	5.34 p. m.	....	....	Cloudy.
	7 0 p. m.	27.44	69	63	27.32	63	62	94	0	0	0	....	Stratus ...	4-4	Hidden .	....	.....	.....	.....	....	....	Cloudy.
	8 0 p. m.	27.45	68	62	27.33	62	61	94	0	0	0	....	Stratus ...	4-4	Hidden .	....	.....	.....	.....	....	....	Cloudy.
	9 0 p. m.	27.44	69	60	27.32	60	60	100	0	0	0	....	Stratus ...	1-4	0	0	0	.....	.....	....	....	Fair.
	10 0 p. m.	27.44	67	60	27.32	60	59	94	0	0	0	....	Stratus ...	4-4	Hidden .	....	.....	.....	.....	....	....	Cloudy.
	10 39 p. m.	27.43	67	61	27.31	61	60	94	0	0	0	....	Stratus ...	4-4	Hidden .	....	.....	.....	.....	....	....	Cloudy.
	12 0 p. m.	27.43	67	61	27.31	61	60	94	0	0	0	....	Stratus ...	4-4	Hidden .	....	.....	.....	.....	....	....	Cloudy.
Knoxville, Tenn.	2 0 p. m.	29.12	76	73	28.987	72	69	85	E.	3	.04	....	Stratus ...	1-4	Cirrus ..	3-4	W.	.....	.....	....	....	Clearing.
	4 7 p. m.	29.12	77	75	28.984	74	70	81	E.	8	.32	....	Stratus ...	1-4	Cirrus ..	3-4	.....	11.45 a.m	1.15 p. m.	.66	....	Cloudy.
	9 0 p. m.	29.10	74	71	28.972	70	68	87	0	0	0	....	Stratus ...	3-4	Hidden .	....	.....	.....	.....	...	....	Cloudy.
	10 32 p. m.	39.11	75	71	28.980	70	69	95	W.	1	.01	....	Stratus ...	4-4	Hidden .	....	.....	.....	.....	....	....	Cloudy.

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Meteorological record for August 19, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.76	65	53	23.67	53	49	73	W.	4	.08	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	2 0 a. m.	23.75	64	52	23.67	52	49	79	N. W.	1	.01	....	0	0	Cirrus ..	2-4	0	.....	.....	...	....	Fair.
	3 0 a. m.	23.74	62	53	23.66	53	49	73	N. W.	4	.08	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	4 0 a. m.	23.74	62	52	23.66	52	48	73	0	0	0	....	0	0	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	5 0 a. m.	23.75	63	51	23.67	51	50	93	E.	4	.08	....	0	0	Cir. & cu.	4-4	W.	.....	.....	....	....	Cloudy.
	6 0 a. m.	23.77	61	55	23.69	55	52	80	S. E.	3	.04	....	0	0	Cirrus ..	2-4	0	.....	.....	....	....	Fair.
	7 14 a. m.	23.78	65	58	23.69	58	55	82	0	0	0	....	Hazy	.....	Cumulus	2-4	0	.....	.....	....	....	Fair.
	8 0 a. m.	23.78	62	57	23.70	57	55	87	0	0	0	....	Fog.....	.....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	9 0 a. m.	23.80	65	58	23.72	58	56	88	0	0	0	....	Fog.....	.....	Cumulus	2-4	0	.....	.....	....	....	Cloudy.
	10 0 a. m.	23.81	65	59	23.72	59	57	88	0	0	0	....	Fog.....	.....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	11 0 a. m.	23.79	65	59	23.70	59	57	88	0	0	0	....	Fog.....	.....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	12 0 m.	23.78	67	59	23.69	59	57	88	N. W.	2	.02	108	Fog.....	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
Base of Mount Mitchell, N. C..	1 0 a. m.	27.42	67	61	27.30	61	60	94	0	0	0	...	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	2 0 a. m.	27.42	66	61	27.31	61	60	94	S.W.	2	.02	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	3 0 a. m.	27.41	66	60	27.30	60	59	94	S.W.	1	.01	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	4 0 a. m.	27.41	65	58	27.30	58	58	100	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	5 0 a. m.	27.42	64	58	27.31	58	57	94	S.W.	1	.01	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	6 0 a. m.	27.43	64	58	27.32	58	57	94	0	0	0	....	Fog	.....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	27.44	64	61	27.33	61	59	88	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	8 0 a. m.	27.44	66	64	27.33	64	62	89	S.W.	1	.01	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	9 0 a. m.	27.47	67	66	27.35	66	64	89	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	10 0 a. m.	27.47	68	69	27.35	69	65	80	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	11 0 a. m.	27.45	70	72	27.33	72	67	76	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	12 0 m.	27.44	73	73	27.31	73	67	72	0	0	0	7	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
Knoxville, Tenn .	7 0 a. m.	29.17	74	69	29.042	68	67	94	N. E.	3	.04	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	7 7 a. m.	29.17	74	69	29.042	68	67	94	N. E.	3	.01	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	11 32 a. m.	29.18	77	70	29.044	75	60	72	N. E.	7	.24	105	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.

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Meteorological record for August 19, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N.C.	1 0 p. m.	23.78	65	56	23.69	56	55	93	0	0	0	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	2 0 p. m.	23.77	65	57	23.68	57	56	94	N. W.	4	.08	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	3 0 p. m.	23.77	69	57	23.68	57	56	94	N. W.	2	.02	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	4 14 p. m.	23.77	66	54	23.68	54	53	93	N.	4	.08	...	Nimbus	4-4	Hidden	...	...	3.25 p. m.	4.45 p. m	.09	...	Light rain.
	5 0 p. m.	23.76	66	54	23.67	54	53	93	N. E.	3	.04	...	Fog	...	Hidden	...	...	...	...	.04	...	Foggy.
	6 0 p. m.	23.78	67	54	23.69	54	53	93	N. E.	8	.33	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	7 0 p. m.	23.78	67	59	23.69	59	51	83	N. E.	10	.50	...	Nimbus	4-4	Hidden	...	...	6.38 p. m.	...	.18	...	Heavy rain.
	8 0 p. m.	23.79	68	59	23.70	58	53	100	N. E.	8	.33	...	Fog	...	Hidden	...	...	...	7.56 p. m.	.23	...	Foggy.
	9 0 p. m.	23.80	67	53	23.71	53	53	100	N. E.	6	.18	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	10 0 p. m.	23.79	66	52	23.70	52	52	100	E.	8	.32	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	10 39 p. m.	23.78	66	52	23.69	52	52	100	N. E.	8	.32	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	12 0 p. m.	23.77	65	52	23.68	52	52	100	N. E.	8	.32	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
Base of Mount Mitchell, N.C.	1 0 p. m.	27.44	75	73	27.30	73	67	72	0	0	0	...	Stratus	4-4	Hidden	...	...	...	...	...	...	Cloudy.
	2 0 p. m.	27.43	75	72	27.29	72	67	76	0	0	0	...	Stratus	4-4	Hidden	...	...	...	...	...	...	Cloudy.
	3 0 p. m.	27.43	75	71	27.29	71	67	80	0	0	0	...	Stratus	4-4	Hidden	...	...	...	...	...	...	Cloudy.
	4 14 p. m.	27.43	74	70	27.30	70	67	85	0	0	0	...	Stratus	4-4	Hidden	...	...	...	...	...	...	Cloudy.
	5 0 p. m.	27.43	74	70	27.30	70	67	89	S. E.	1	.01	...	Stratus	4-4	Hidden	...	...	...	...	...	...	Cloudy.
	6 0 p. m.	27.44	74	67	27.31	67	65	94	0	0	0	...	Nimbus	4-4	Hidden	...	...	...	...	.21	...	Threatening.
	7 0 p. m.	27.42	74	64	27.32	64	63	94	0	0	0	...	Nimbus	4-4	Hidden	...	...	6.19 p. m	...	.07	...	Heavy rain.
	8 0 p. m.	27.45	71	64	27.33	64	63	94	0	0	0	...	Nimbus	4-4	Hidden	...	...	...	...	...	...	Light rain.
	9 0 p. m.	27.46	70	63	27.34	63	63	94	0	0	0	...	Stratus	4-4	Hidden	...	...	...	8.39 p. m.	...	...	Cloudy.
	10 0 p. m.	27.45	70	63	27.33	63	62	94	0	0	0	...	Stratus	4-4	Hidden	...	...	...	...	...	...	Cloudy.
	10 39 p. m.	27.45	69	63	27.33	63	62	94	0	0	0	...	Stratus	4-4	Hidden	...	...	...	...	...	...	Cloudy.
	12 0 p. m.	27.45	69	63	27.33	63	62	94	0	0	0	...	Nimbus	4-4	Hidden	...	...	11.05 p. m.	...	.26	...	Light rain.
Knoxville, Tenn.	2 0 p. m.	29.15	78	80	29.012	79	70	61	E.	8	.32	...	0	0	Cumulus	3-4	E.	...	...	...	...	Cloudy.
	4 7 p. m.	29.14	79	80	28.999	79	70	61	E.	8	.32	...	0	0	Cumulus	2-4	E.	...	...	...	...	Fair.
	9 0 p. m.	29.13	74	72	29.022	71	66	75	N. E.	8	.32	...	0	0	0	0	0	...	...	...	...	Clear.
	10 32 p. m.	29.14	73	71	29.010	70	65	75	N. E.	4	.08	...	0	0	0	0	0	...	...	...	...	Clear.

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Meteorological record for August 20, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM Dry bulb.	HYGROM Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.76	64	51	23.68	51	51	100	N. E.	6	.18	....	Fog	....	Hidden	....	.....	12.08 a. m.	12.45 a. m.	.26	....	Foggy.
	2 0 a. m.	23.75	65	52	23.66	52	52	100	E.	2	.02	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.76	66	51	23.67	51	50	93	S.	2	.02	....	0	0	Cirrus	2-4	0	.....	.....	....	....	Fair.
	4 0 a. m.	23.75	66	51	23.66	51	50	93	S. W.	2	.02	....	Light fog	....	Cir. & cu.	2-4	S. W.	.....	.....	....	....	Fair.
	5 0 a. m.	23.77	65	51	23.68	51	50	93	W.	4	.08	....	Light fog	....	Cir. & cu.	2-4	S. W.	.....	.....	....	....	Fair.
	6 0 a. m.	23.77	64	53	23.69	53	53	100	W.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23.78	64	54	23.70	54	53	94	N. W.	2	.02	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 a. m.	23.79	63	56	23.71	56	55	94	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 a. m.	23.80	65	56	23.72	56	55	94	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 a. m.	23.80	64	56	23.72	56	55	94	N. E.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	11 0 a. m.	23.80	67	61	23.71	61	58	83	E.	4	.08	....	Fog	....	Hidden	....	.....	10.05 a. m.	10.31 a. m.	.04	....	Foggy.
	12 0 m ..	23.80	70	60	23.70	60	58	88	N. E.	4	.08	1.02	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.43	69	63	27.31	63	62	94	0	0	0	....	Stratus	3-4	Hidden	....	.....	.....	12.45 a. m.	.03	....	Cloudy.
	2 0 a. m.	27.42	68	61	27.30	61	60	94	0	0	0	....	Stratus	1-4	0	0	0	.....	.....	....	....	Fair.
	3 0 a. m.	27.42	68	61	27.30	61	60	94	0	0	0	....	Stratus	3-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	4 0 a. m.	27.42	68	62	27.30	62	61	94	0	0	0	....	Stratus	3-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	5 0 a. m.	27.44	68	62	27.32	62	61	94	0	0	0	....	Nimbus	4-4	Hidden	....	.....	.....	.....	....	....	Drizzling rain.
	6 0 a. m.	27.44	68	64	27.32	64	63	94	0	0	0	....	Stratus	3-4	0	0	0	.....	.....	....	....	Fair.
	7 14 a. m.	27.46	68	67	27.34	67	64	84	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	8 0 a. m.	27.47	69	67	27.35	67	64	84	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	9 0 a. m.	27.47	69	68	27.35	68	66	89	0	0	0	....	Stratus	2-4	Cumulus	2-4	0	.....	.....	....	....	Cloudy.
	10 0 a. m.	27.47	71	71	27.34	71	67	80	E.	1	.01	....	Stratus	1-4	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	11 0 a. m.	27.46	73	71	27.33	71	67	80	E.	1	.01	....	0	0	Cumulus	3-4	E.	.....	.....	....	....	Fair.
	12 0 m ..	27.45	74	75	27.32	75	69	72	0	0	0	3	0	0	Cumulus	2-4	N. E.	.....	.....	....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.16	72	67	29.037	66	63	84	N.	3	.04	....	Hazy	....	0	0	0	.....	.....	....	....	Fair.
	7 7 a. m.	29.16	72	67	29.037	66	63	84	N.	3	.04	....	Hazy	....	0	0	0	.....	.....	....	....	Fair.
	11 32 a. m.	29.17	77	80	29.034	79	68	53	N. E.	8	.32	121	0	0	Cumulus	1-4	N. E.	.....	.....	....	....	Fair.

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Meteorological record for August 20, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM Dry bulb.	HYGROM Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.79	66	58	23.70	58	57	94	E.	2	.02	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 p. m.	23.76	64	57	23.70	57	56	94	E.	1	.01	....	Nimbus	4-4	Hidden	....	.....	1.45 p. m.	.....	.06	....	Heavy rain.
	3 0 p. m.	23.77	65	56	23.68	56	55	94	E.	1	.01	....	Fog	....	Hidden	....	.....	.....	2.30 p. m.	.10	....	Foggy.
	4 14 p. m.	23.76	64	56	23.68	56	55	94	N. E.	4	.08	....	Fog	....	Cumulus	2-4	0	.....	.....	.....	....	Cloudy.
	5 0 p. m.	23.76	65	57	23.67	57	56	94	N. E.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 p. m.	23.76	65	55	23.67	55	55	100	E.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 0 p. m.	23.79	67	54	23.70	54	54	100	E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	8 0 p. m.	23.79	66	53	23.70	53	53	100	S. E.	8	.32	....	Nimbus	4-4	Hidden	....	.....	7.15 p. m.	.....	.63	....	Heavy rain.
	9 0 p. m.	23.80	69	54	23.71	54	54	100	S. E.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.41	....	Heavy rain.
	10 0 p. m.	23.80	70	54	23.70	54	54	100	E.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.34	....	Heavy rain.
	10 39 p. m.	23.81	70	53	23.71	53	53	100	E.	8	.32	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.28	....	Heavy rain.
	12 0 p. m.	23.80	68	53	23.71	53	53	100	S. E.	6	.18	....	Fog	....	Hidden	....	.....	.....	11.20 p. m.	.20	....	Foggy.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.44	76	75	27.30	75	68	68	N. E.	1	.01	....	0	0	Cumulus	3-4	N. E.	.....	.....	.....	....	Fair.
	2 0 p. m.	27.44	76	72	27.30	72	68	80	E.	1	.01	....	0	0	Cumulus	4-4	E.	.....	.....	.....	....	Cloudy.
	3 0 p. m.	27.44	75	70	27.30	70	67	85	0	0	0	....	0	0	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	4 14 p. m.	27.44	75	71	27.30	71	67	80	0	0	0	....	Stratus	1-4	Cumulus	3-4	0	.....	.....	.....	....	Cloudy.
	5 0 p. m.	27.44	74	69	27.31	69	66	85	0	0	0	....	Stratus	2-4	Cumulus	1-4	W.	.....	.....	.....	....	Cloudy.
	6 0 p. m.	27.46	73	68	27.33	68	66	89	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	7 0 p. m.	27.47	74	67	27.34	67	65	89	0	0	0	....	Nimbus	4-4	Hidden	....	.....	6.20 p. m.	.....	.18	....	Light rain.
	8 0 p. m.	27.48	72	65	27.35	65	64	94	E.	2	.02	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.08	....	Light rain.
	9 0 p. m.	27.48	71	65	27.35	65	64	94	0	0	0	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.01	....	Light rain.
	10 0 p. m.	27.48	71	65	27.35	65	65	100	0	0	0	....	Nimbus	4-4	Hidden	....	.....	.....	10.10 p. m.	.05	....	Light rain.
	10 39 p. m.	27.48	71	65	27.35	65	64	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	12 0 p. m.	27.47	70	64	27.35	64	63	94	0	0	0	....	Stratus	1-4	0	0	0	.....	.....	.....	....	Fair.
Knoxville, Tenn.	2 0 p. m.	29.12	80	82	28.977	81	70	53	N.	6	.18	....	0	0	Cumulus	3-4	N. E.	.....	.....	.....	....	Cloudy.
	4 7 p. m.	29.11	78	78	28.972	77	69	65	N.	10	.50	....	Stratus	3-4	Hidden	....	.....	3.50 p. m.	4.20 p. m.	.06	....	Cloudy.
	9 0 p. m.	25.15	77	73	29.014	72	67	76	N. E.	10	.50	....	Stratus	2-4	Cirrus	1-4	0	.....	.....	.....	....	Cloudy.
	10 32 p. m.	29.13	76	72	28.997	71	67	80	N. E.	8	.32	....	Stratus	1-4	0	0	0	.....	.....	.....	....	Fair.

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Meteorological record for August 21, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Comm'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.80	67	53	23.71	53	52	93	S. E.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 a. m.	23.79	67	53	23.70	53	52	93	S.	12	.72	....	Fog	....	Cumulus	3-4	0	.....	.....	.....	....	Foggy.
	3 0 a. m.	23.79	66	52	23.70	52	52	100	S. W.	12	.72	....	Fog	....	Cumulus	3-4	0	.....	.....	.....	....	Cloudy.
	4 0 a. m.	23.79	63	53	23.71	53	52	93	S. W.	12	.72	....	0	0	Cumulus	3-4	0	.....	.....	.....	....	Cloudy.
	5 0 a. m.	23.80	62	54	23.72	54	53	93	W.	18	1.62	....	Fog	....	Cumulus	2-4	0	.....	.....	.....	....	Cloudy.
	6 0 a. m.	23.80	59	55	23.73	55	54	93	W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 14 a. m.	23.80	58	56	23.73	56	55	94	S. W.	12	.72	....	Fog	....	Fog	....	.....	.....	.....	.....	....	Foggy.
	8 0 a. m.	23.82	62	58	23.74	58	57	94	W.	12	.72	....	0	0	Cumulus	4-4	W.	.....	.....	.....	....	Cloudy.
	9 0 a. m.	23.84	64	59	23.76	59	58	94	W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 a. m.	23.83	64	59	23.75	59	57	88	N. W.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	11 0 a. m.	23.83	62	58	23.75	58	57	94	S. W.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	12 0 m...	23.83	65	62	23.74	62	59	83	W.	4	.08	181	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.45	69	63	27.33	63	62	94	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	2 0 a. m.	27.44	69	62	27.32	62	61	94	0	0	0	....	Stratus ...	1-4	0	0	0	.....	.....	.....	....	Fair.
	3 0 a. m.	27.40	68	62	27.34	62	61	94	0	0	0	....	Stratus ..	3-4	0	0	0	.....	.....	.....	....	Fair.
	4 0 a. m.	27.47	67	62	27.35	62	61	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	5 0 a. m.	27.48	67	63	27.36	63	62	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	6 0 a. m.	27.49	67	65	27.37	65	64	94	0	0	0	....	Stratus ...	3-4	Cumulus	1-4	0	.....	.....	.....	....	Cloudy.
	7 14 a. m.	27.49	68	68	27.37	68	66	89	0	0	0	....	0	0	Cumulus	3-4	N. W.	.....	.....	.....	....	Fair.
	8 0 a. m.	27.50	70	70	27.38	70	67	85	0	0	0	....	0	0	Cumulus	3-4	N.	.....	.....	.....	....	Fair.
	9 0 a. m.	27.51	72	74	27.38	74	73	95	E.	1	.01	....	Stratus ...	1-4	Cumulus	2-4	S. W.	.....	.....	.....	....	Fair.
	10 0 a. m.	27.51	75	74	27.37	74	73	95	0	0	0	....	Stratus ...	1-4	Cumulus	2-4	S. W.	.....	.....	.....	...	Fair.
	11 0 a. m.	27.50	75	75	27.36	75	71	81	E.	1	.01	....	Stratus ...	1-4	Cumulus	2-4	W.	10.35 a. m.	10.55 a. m.	.04	....	Fair.
	12 0 m...	27.49	77	74	27.35	74	70	81	0	0	0	8	0	0	Cumulus	3-4	S. W.	11.25 a. m.	11.45 a. m.	.03	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.21	74	68	29.082	67	66	94	N. E.	3	.04	....	Light fog	....	Cir.-cum	3-4	S. W.	.....	.....	.....	....	Cloudy.
	7 7 a. m.	29.21	74	68	29.082	67	66	94	N. E.	3	.04	....	Light fog	....	Cir.-cum	3-4	S. W.	.....	.....	.....	....	Cloudy.
	11 39 a. m.	29.20	80	81	29.057	80	72	66	E.	3	.04	108	Hazy	...	Cumulus	3-4	W.	.....	.....	.....	....	Cloudy.

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Meteorological record for August 21, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 p. m.	23.82	66	60	23.73	60	58	88	S.W.	2	.02	....	Fog	....	Hidden	....	.....	.....	.....	...	....	Foggy.
	2 0 p. m.	23.81	65	60	23.72	60	59	94	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	...	....	Foggy.
	3 0 p. m.	23.82	68	59	23.73	59	59	100	S.W.	4	.08	....	Nimbus...	4-4	Hidden	....	.....	2.30 p. m.	.....	.05	....	Light rain.
	4 14 p. m.	23.81	63	57	23.73	57	57	100	W.	4	.08	....	Fog	....	Hidden	....	.....	.....	3.40 p. m.	.03	....	Foggy.
	5 0 p. m.	23.81	64	57	23.73	57	56	94	S.W.	4	.08	....	Fog	....	Hidden	....	.....	4.20 p. m.	4.50 p. m.	.08	....	Foggy.
	6 0 p. m.	23.82	65	57	23.73	57	55	87	S.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	...	....	Cloudy.
	7 0 p. m.	23.82	64	55	23.74	55	55	100	S.	4	.08	....	Fog	...	Hidden	....	.....	.....	.....	...	....	Foggy.
	8 0 p. m.	23.83	64	54	23.75	54	54	100	S.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	...	....	Foggy.
	9 0 p. m.	23.84	64	53	23.76	53	53	100	S.W.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	...	....	Foggy.
	10 0 p. m.	23.84	66	54	23.75	54	54	100	S.W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	...	....	Foggy.
	10 39 p. m.	23.83	66	54	23.74	54	54	100	S.W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	...	....	Foggy.
	12 0 p. m.	23.83	64	54	23.75	54	54	100	W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	...	....	Foggy.
Base of Mount Mitchell, N. C..	1 0 p. m.	27.48	78	73	27.34	73	71	90	0	0	0	....	Nimbus...	4-4	Hidden	....	.....	12.30 p. m.	1.04 p. m.	.03	....	Light rain.
	2 0 p. m.	27.47	78	71	27.33	71	69	90	E.	1	.01	....	Nimbus...	3-4	Hidden	....	.....	1.35 p. m.	2.05 p. m.	.03	....	Light rain.
	3 0 p. m.	27.48	77	71	27.34	71	70	95	0	0	0	....	Stratus ...	1-4	Cumulus	2-4	W.	2.50 p. m.	3.10 p. m.	.02	....	Cloudy.
	4 14 p. m.	27.48	76	68	27.34	68	66	89	E.	1	.01	....	Nimbus...	3-4	Hidden	....	.....	4.00 p. m.	.....	.09	....	Light rain.
	5 0 p. m.	27.48	75	69	27.34	69	68	95	E.	1	.01	....	Stratus ...	2-4	Cirrus...	2-4	0	.....	4.34 p. m.	.01	....	Cloudy.
	6 0 p. m.	27.49	74	67	27.36	67	66	95	0	0	0	....	Hazy	...	Cir. & cu	2-4	S.	.....	.....	...	....	Fair.
	7 0 p. m.	27.49	73	65	27.36	65	63	89	0	0	0	....	0	0	0	0	0	7.48 p. m.	.....	...	....	Clear.
	8 0 p. m.	27.51	71	64	27.38	64	63	94	0	0	0	....	Nimbus...	2-4	0	0	0	.....	8.15 p. m.	...	....	Light rain.
	9 0 p. m.	27.51	71	64	27.38	64	63	94	0	0	0	....	Stratus ...	2-4	0	0	0	.....	.....	...	....	Fair.
	10 0 p. m.	27.50	71	63	27.37	63	62	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	...	....	Cloudy.
	10 39 p. m.	27.50	70	63	27.38	63	62	94	0	0	0	....	Stratus ...	1-4	0	0	0	.....	.....	...	....	Fair.
	12 0 p. m.	27.49	69	62	27.37	62	61	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	...	....	Cloudy.
Knoxville, Tenn.	2 0 p. m.	29.16	82	85	29.012	84	72	53	W.	3	.04	...	0	0	Cu. & cir	2-4	W.	.....	.....	...	....	Fair.
	4 7 p. m.	29.16	83	86	29.009	85	72	50	N. W.	8	.32	....	Stratus ...	1-4	Cu. & cir	3-4	W.	.....	.....	...	....	Cloudy.
	9 0 p. m.	29.15	75	71	29.020	70	69	95	0	0	0	....	Stratus ...	2-4	0	0	0	.....	.....	...	....	Clearing.
	10 32 p. m.	29.15	75	71	29.020	70	69	95	0	0	0	....	Stratus ...	1-4	Hazy	....	.....	5.10 p. m.	6.00 p. m.	.44	....	Fair.

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Meteorological record for August 22, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23. 82	65	54	23. 73	54	54	100	S.W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23. 81	66	53	23. 72	53	53	100	W.	6	.18	....	Fog	....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	3 0 a. m.	23. 80	66	53	23. 71	53	52	93	W.	4	.08	....	0	0	Cumulus	2-4	0	.....	.....	....	....	Fair.
	4 0 a. m.	23. 80	65	52	23. 71	52	51	93	W.	4	.08	....	0	0	Cirrus	1-4	0	.....	.....	....	....	Fair.
	5 0 a. m.	23. 80	60	53	23. 72	53	52	93	W.	4	.08	....	Hazy	....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	6 0 a. m.	23. 81	60	56	23. 73	56	55	94	W.	8	.32	....	Hazy	....	Cumulus	2-4	0	.....	.....	....	....	Fair.
	7 14 a. m.	23. 83	66	57	23. 74	57	56	94	N. W.	4	.08	....	0	0	Cir. & cu	2-4	0	.....	.....	....	....	Fair.
	8 0 a. m.	23. 85	72	57	23. 75	57	55	87	N. W.	6	.18	....	0	0	Cir. & cu	2-4	0	.....	.....	....	....	Fair.
	9 0 a. m.	23. 87	70	60	23. 77	60	57	82	N. W.	6	.18	....	0	0	Cir. & cu	2-4	N. W.	.....	.....	....	....	Fair.
	10 0 a. m.	23. 88	68	57	23. 79	57	56	94	N. W.	6	.18	....	Fog	....	Hidden	....	.....	10.48 a. m.	.....	.02	....	Foggy.
	11 0 a. m.	23. 87	65	56	23. 78	56	56	100	0	0	0	....	Nimbus	4-4	Hidden	....	.....	.....	11.36 a. m.	.23	....	Light rain.
	12 0 m ..	23. 87	65	59	23. 78	59	58	94	N. E.	8	.32	145	Fog	....	Cumulus	2-4	.....	.....	.....	....	....	Foggy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27. 49	69	63	27. 37	63	62	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	2 0 a. m.	27. 49	69	63	27. 37	63	62	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	3 0 a. m.	27. 49	69	63	27. 37	63	62	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	4 0 a. m.	27. 49	69	63	27. 37	63	62	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	5 0 a. m.	27. 50	69	63	27. 38	63	62	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy
	6 0 a. m.	27. 51	68	63	27. 39	63	62	94	0	0	0	....	Nimbus	4-4	Hidden	....	.....	5.45 a. m.	.....	....	....	Light rain.
	7 14 a. m.	27. 53	68	62	27. 41	62	60	88	0	0	0	....	Stratus	3-4	Cir.-cum.	1-4	W.	.....	6.15 a. m.	.02	....	Cloudy.
	8 0 a. m.	27. 54	69	73	27. 42	73	70	85	N. E.	1	.01	....	0	0	Cumulus	2-4	N. E.	.....	.....	....	....	Fair.
	9 0 a. m.	27. 54	72	76	27. 41	76	70	73	N. E.	4	.08	....	Stratus	1-4	Cumulus	3-4	N. E.	.....	.....	....	....	Cloudy.
	10 0 a. m.	27. 55	75	77	27. 41	77	69	65	N. E.	1	.01	....	0	0	Cumulus	3-4	N. E.	.....	.....	....	....	Fair.
	11 0 a. m.	27. 54	77	78	27. 40	78	71	69	N. E.	4	.08	....	0	0	Cumulus	2-4	N. E.	.....	.....	....	....	Fair.
	12 0 m ..	27. 53	79	75	27. 38	75	70	77	N. E.	1	.01	5	0	0	Cumulus	4-4	N. E.	.....	.....	....	....	Cloudy.
Knoxville, Tenn.	7 0 a. m.	29. 23	75	70	29. 100	69	68	95	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	7 7 a. m.	29. 23	75	70	29. 100	69	68	95	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	11 32 a. m.	29. 28	76	73	29. 147	72	70	90	S.	8	.32	60	Nimbus	4-4	Hidden	....	.....	.....	.....	....	....	Light rain.

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Meteorological record for August 22, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.86	67	58	23.77	58	58	100	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 p. m.	23.85	68	56	23.76	56	56	100	N. E.	4	.08	....	Nimbus...	4-4	Hidden	....	.....	1.05 p. m.	.....	.02	....	Light rain.
	3 0 p. m.	23.85	65	54	23.76	54	53	93	N. E.	8	.32	....	Nimbus...	2-4	Cumulus	2-4	0	.....	.....	.09	....	Lt. rain; thunder s'm.
	4 14 p. m.	23.84	63	55	23.76	55	54	93	N. E.	12	.72	....	Light fog	....	Cumulus	3-4	N. E.	.....	.....	.04	....	Cloudy.
	5 0 p. m.	23.84	63	54	23.76	54	54	100	N. E.	6	.18	....	Nimbus...	4-4	Hidden	....	.....	.....	4.10 p. m.	.03	....	Light rain.
	6 0 p. m.	23.85	61	54	23.77	54	53	93	N. E.	16	1.28	....	Light fog	....	Cumulus	4-4	0	4.30 p. m.	5.20 p. m.	.01	....	Foggy.
	7 0 p. m.	23.85	62	55	23.77	55	52	81	N. E.	12	.72	....	0	0	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	8 0 p. m.	23.86	63	54	23.78	54	51	80	N. E.	8	.32	....	0	0	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	9 0 p. m.	23.87	63	54	23.79	54	52	87	N. E.	12	.72	....	0	0	Cumulus	3-4	0	.....	.....	.....	....	Cloudy.
	10 0 p. m.	23.87	62	53	23.79	53	52	93	N. E.	10	.50	....	0	0	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	10 39 p. m.	23.86	62	53	23.78	53	52	93	N. E.	12	.72	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	12 0 p. m.	23.86	62	53	23.78	53	50	80	N. E.	10	.50	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.52	79	73	27.37	73	70	85	0	0	0	....	Nimbus...	1-4	Cumulus	3-4	0	12.30 p. m.	.....	.....	....	Light rain.
	2 0 p. m.	27.52	78	69	27.38	69	67	90	N. E.	1	.01	....	Stratus ...	4-4	Hidden	....	.....	.....	1.10 p. m.	.....	....	Threatening.
	3 0 p. m.	27.52	76	70	27.38	70	68	90	N. E.	1	.01	....	Nimbus...	4-4	Hidden	....	.....	2.20 p. m.	.....	.01	....	Light rain.
	4 14 p. m.	27.52	75	69	27.38	69	68	95	0	0	0	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.04	....	Light rain.
	5 0 p. m.	27.52	71	68	27.39	68	66	89	0	0	0	....	Nimbus...	4-4	Hidden	....	.....	.....	.....	.04	....	Light rain.
	6 0 p. m.	27.53	73	67	27.40	67	66	95	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	5.30 p. m.	.....	....	Cloudy.
	7 0 p. m.	27.53	73	66	27.40	66	65	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	8 0 p. m.	27.54	72	65	27.41	65	64	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	9 0 p. m.	27.54	71	65	27.41	65	64	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	10 0 p. m.	27.54	71	64	27.41	64	63	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	10 39 p. m.	27.54	70	64	27.42	64	63	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	12 0 p. m.	27.52	70	63	27.40	63	62	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
Knoxville, Tenn.	2 0 p. m.	29.24	77	78	29.099	77	73	79	S.	3	.04	....	0	0	Cumulus	3-4	0	.....	.....	.....	....	Clearing.
	4 7 p. m.	29.20	79	83	29.059	82	74	67	S.	4	.08	....	0	0	Cumulus	1-4	0	11.45 a. m.	12.30 p. m.	.01	....	Fair.
	9 0 p. m.	29.22	75	72	29.090	71	69	90	N. E.	3	.04	....	Stratus ...	1-4	0	0	0	.....	.....	.....	....	Fair.
	10 32 p. m.	29.21	76	71	29.077	70	69	95	N. E.	2	.02	....	0	0	0	0	0	.....	.....	.....	....	Clear.

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Meteorological record for August 23, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23. 84	62	53	23. 76	53	52	93	N. E.	12	.72	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	2 0 a. m.	23. 84	61	53	23. 76	53	52	93	N. E.	12	.72	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	3 0 a. m.	23. 83	61	54	23. 75	54	53	93	N. E.	8	.32	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	4 0 a. m.	23. 83	60	55	23. 75	55	52	81	N. E.	10	.50	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	5 0 a. m.	23. 84	59	54	23. 77	54	50	74	N. E.	12	.72	....	Hazy	.....	Cir.& cu.	1-4	0	.....	.....	....	....	Fair.
	6 0 a. m.	23. 86	62	56	23. 78	56	53	81	N. E.	12	.72	....	Hazy	.....	Cir.& cu.	1-4	0	.....	.....	....	....	Fair.
	7 14 a. m.	23. 88	63	57	23. 80	57	55	87	N. E.	8	.32	....	0	0	Cir.& cu.	3-4	0	.....	.....	....	....	Cloudy.
	8 0 p. m.	23. 90	64	58	23. 82	58	55	82	N. E.	8	.32	....	Light fog	.....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	9 0 a. m.	23. 91	65	60	23. 82	60	57	82	N. E.	6	.18	....	Hazy	.....	Cumulus	3-4	N. E.	.....	.....	....	....	Cloudy.
	10 0 a. m.	23. 92	66	62	23. 83	62	58	77	N. E.	4	.08	....	Hazy	.....	Cumulus	2-4	N. E.	.....	.....	....	....	Fair.
	11 0 a. m.	23. 92	67	63	23. 83	63	58	72	N. E.	6	.18	....	Hazy	.....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	12 0 m...	23. 93	68	63	23. 84	63	59	78	N. E.	4	.08	204	Hazy	.....	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27. 52	70	63	27. 40	63	62	94	0	0	0	....	Stratus ...	4-4	Hidden .	.....	.....	.....	.....	....	....	Cloudy.
	2 0 a. m.	27. 51	69	63	27. 39	63	62	94	0	0	0	....	Stratus ...	4-4	Hidden .	.....	.....	.....	.....	....	....	Cloudy.
	3 0 a. m.	27. 51	69	62	27. 39	62	61	94	0	0	0	....	Stratus ...	4-4	Hidden .	.....	.....	.....	.....	....	....	Cloudy.
	4 0 a. m.	27. 52	68	61	27. 40	61	60	94	0	0	0	....	Fog	.....	Hidden .	.....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	27. 54	68	61	27. 42	61	60	94	0	0	0	....	Fog	.....	Hidden .	.....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	27. 56	67	62	27. 44	62	61	94	0	0	0	....	Fog	.....	Hidden .	.....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	27. 57	68	71	27. 45	71	66	75	0	0	0	....	0	0	Cirrus ..	2-4	W.	.....	.....	....	....	Fair.
	8 0 p. m.	27. 58	69	73	27. 46	73	68	76	0	0	0	....	Stratus ...	1-4	Cirrus ..	1-4	W.	.....	.....	....	....	Fair.
	9 0 a. m.	27. 59	72	74	27. 46	74	69	76	0	0	0	....	0	0	Cir.& cu.	2-4	W.	.....	.....	....	....	Fair.
	10 0 a. m.	27. 59	75	78	27. 45	78	75	86	0	0	0	....	0	0	Cumulus	1-4	W.	.....	.....	....	....	Fair.
	11 0 a. m.	27. 58	78	80	27. 44	80	70	58	0	0	0	....	0	0	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	12 0 m...	27. 59	80	79	27. 44	79	71	66	0	0	0	5	0	0	Cumulus	3-4	W.	.....	.....	....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29. 28	74	67	29. 152	66. 5	66	97	0	0	0	....	Fog	.....	Hidden .	.....	.....	.....	.....	....	....	Foggy.
	7 7 a. m.	29. 28	74	67	29. 152	66. 5	66	97	0	0	0	....	Fog	.....	Hidden .	.....	.....	.....	.....	....	....	Foggy.
	11 32 a. m.	29. 31	80	81	29. 167	80	73	68	E.	4	.08	80	0	0	Cumulus	1-4	E.	.....	.....	....	....	Fair.

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Meteorological record for August 23, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 p. m.	23.94	70	61	23.84	61	60	94	N. E.	2	.02	....	Hazy.....	....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	2 0 p. m.	23.92	70	61	23.82	61	60	94	N. E.	4	.06	....	Hazy.....	....	Cumulus	3-4	E.	.....	.....	.....	.....	Cloudy.
	3 0 p. m.	23.90	67	59	23.81	59	58	94	N. W.	4	.06	....	Hazy.....	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	4 14 p. m.	23.90	68	59	23.81	59	58	94	N.	4	.06	....	Hazy.....	....	Cumulus	4-4	W.	3.10 p. m.	3.25 p. m.	.03	.....	Cloudy.
	5 0 p. m.	23.90	67	61	23.81	61	58	83	N.	6	.16	....	Hazy.....	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	6 0 p. m.	23.91	69	60	23.82	60	58	88	N.	8	.32	....	Hazy.....	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	7 0 p. m.	23.93	66	56	23.84	56	55	94	N. W.	12	.72	....	Hazy.....	....	Cir. & cu	2-4	0	.....	.....	.....	.....	Fair.
	8 0 p. m.	23.94	64	54	23.86	54	53	93	N. E.	12	.72	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	9 0 p. m.	23.94	63	55	23.86	55	54	93	N. E.	12	.72	....	Light fog..	.....	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	10 0 p. m.	23.94	62	55	23.86	55	54	93	N.	9	.40	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	10 39 p. m.	23.93	61	54	23.85	54	53	93	N.	8	.32	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	12 0 p. m.	23.91	59	54	23.84	54	53	93	E.	12	.72	....	Light fog..	....	0	0	0	.....	.....	.....	.....	Fair.
Base of Mount Mitchell, N. C..	1 0 p. m.	27.57	82	82	27.42	82	71	56	N. E.	2	.02	....	Stratus ...	1-4	Cumulus	2-4	N. W.	.....	.....	.....	.....	Fair.
	2 0 p. m.	27.58	80	75	27.43	75	69	72	S. E.	4	.08	....	Stratus ...	1-4	Cumulus	2-4	N. E.	1.45 p. m.	2.06 p. m.	.01	.....	Fair.
	3 0 p. m.	27.57	80	77	27.42	77	69	65	0	0	0	....	0	0	Cumulus	2-4	N. W.	2.10 p. m.	2.20 p. m.	.01	.....	Fair.
	4 14 p. m.	27.57	80	74	27.42	74	70	81	S. E.	1	.01	....	0	0	Cumulus	2-4	N. E.	.....	.....	.....	.....	Fair.
	5 0 p. m.	27.57	78	70	27.43	70	68	90	0	0	0	....	0	0	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	6 0 p. m.	27.57	76	67	27.43	67	65	89	0	0	0	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	7 0 p. m.	27.58	74	65	27.45	65	64	94	0	0	0	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	8 0 p. m.	27.58	72	63	27.45	63	61	89	0	0	0	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	9 0 p. m.	27.58	70	61	27.46	61	60	94	0	0	0	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	10 0 p. m.	27.58	68	60	27.46	60	59	94	0	0	0	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	10 39 p. m.	27.57	68	59	27.45	59	58	94	0	0	0	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	12 0 p. m.	27.57	67	57	27.45	57	56	94	0	0	0	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
Knoxville, Tenn.	2 0 p. m.	29.28	82	85	29.132	84	72	55	E.	8	.32	....	0	0	Cumulus	1-4	E.	.....	.....	.....	.....	Fair.
	4 7 p. m.	29.25	85	88	29.093	87	73	45	E.	4	.08	....	0	0	Cumulus	1-4	N. E.	.....	.....	.....	.....	Fair.
	9 0 p. m.	29.26	80	78	29.116	77	72	77	0	0	0	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	10 32 p. m.	29.26	78	74	29.128	73	70	85	N.	1	.01	....	0	0	0	0	0	.....	.....	.....	.....	Clear.

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Meteorological record for August 24, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Wet bulb.	HYGROM. Dry bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23. 90	59	54	23. 83	54	53	93	N.	8	.32	....	0	0	Cirrus	1-4	0	.....	.....	.....	.....	Fair.
	2 0 a. m.	23. 89	59	53	23. 82	53	52	93	N. W.	6	.18	....	0	0	Cirrus	1-4	0	.....	.....	.....	.....	Fair.
	3 0 a. m.	23. 89	58	53	23. 82	53	52	93	N. W.	2	.02	....	Light fog	....	0	0	0	.....	.....	.....	.....	Fair.
	4 0 a. m.	23. 91	59	53	23. 84	53	52	93	N. W.	2	.02	....	Light fog	....	0	0	0	.....	.....	.....	.....	Fair.
	5 0 a. m.	23. 90	59	55	23. 83	55	54	93	N. W.	6	.18	....	Light fog	....	0	0	0	.....	.....	.....	.....	Fair.
	6 0 a. m.	23. 91	60	56	23. 83	56	55	94	N. W.	2	.02	....	Light fog	....	Cirrus	1-4	0	.....	.....	.....	.....	Fair.
	7 14 a. m.	23. 93	63	58	23. 85	58	56	88	N. W.	8	.32	....	Hazy	....	Cirrus	1-4	0	.....	.....	.....	.....	Fair.
	8 0 a. m.	23. 94	63	60	23. 86	60	55	71	N. W.	4	.08	....	Hazy	....	Cirrus	1-4	0	.....	.....	.....	.....	Fair.
	9 0 a. m.	23. 95	63	60	23. 87	60	55	71	N.	4	.08	....	Hazy	....	Cumulus..	1-4	N.	.....	.....	.....	.....	Fair.
	10 0 a. m.	23. 95	63	63	23. 87	63	58	72	N.	2	.02	....	Hazy	....	Cumulus..	2-4	N.	.....	.....	.....	.....	Fair.
	11 0 a. m.	23. 94	63	64	23. 86	64	59	73	0	0	0	....	Hazy	....	Cumulus..	2-4	N. W.	.....	.....	.....	.....	Fair.
	12 0 m ..	23. 94	65	63	23. 85	63	58	72	W.	1	.01	145	Hazy	....	Cumulus..	2-4	N. W.	.....	.....	.....	.....	Fair.
Base of Mount Mitchell, N. C.	1 0 a. m.	27. 56	66	56	27. 45	56	55	93	0	0	0	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	2 0 a. m.	27. 57	64	56	27. 46	56	55	93	0	0	0	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	3 0 a. m.	27. 56	64	55	27. 45	55	54	93	0	0	0	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	4 0 a. m.	27. 57	63	56	27. 46	56	55	93	0	0	0	....	Fog	....	Hidden ...	.....	.....	.....	.....	.....	.....	Foggy.
	5 0 a. m.	27. 58	62	55	27. 48	55	54	93	0	0	0	....	Fog	....	Hidden ...	.....	.....	.....	.....	.....	.....	Foggy.
	6 0 a. m.	27. 59	62	56	27. 49	56	55	93	0	0	0	....	Fog	....	Hidden ...	.....	.....	.....	.....	.....	.....	Foggy.
	7 14 a. m.	27. 60	64	62	27. 49	62	61	94	0	0	0	....	Hazy	....	Hazy	.....	.....	.....	.....	.....	.....	Clear.
	8 0 a. m.	27. 61	65	72	27. 50	72	66	71	S. E.	1	.01	....	Hazy	....	0	0	0	.....	.....	.....	.....	Clear.
	9 0 a. m.	27. 61	60	74	27. 49	74	67	68	0	0	0	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	10 0 a. m.	27. 61	74	79	27. 48	79	75	82	0	0	0	....	Hazy	....	Cumulus..	1-4	E.	.....	.....	.....	.....	Clear.
	11 0 a. m.	27. 61	77	80	27. 47	80	68	51	0	0	0	....	Hazy	....	Cumulus..	1-4	E.	.....	.....	.....	.....	Clear.
	12 0 m ..	27. 60	80	81	27. 45	81	70	55	0	0	0	9	Hazy	....	Cumulus..	2-4	E.	.....	.....	.....	.....	Fair.
Knoxville, Tenn .	7 0 a. m.	29. 39	76	70	29. 185	69	68	95	N.	2	.02	....	Fog	....	0	0	0	.....	.....	.....	.....	Fair.
	7 7 a. m.	29. 39	76	71	29. 185	70	68	90	N.	2	.02	....	Fog	....	0	0	0	.....	.....	.....	.....	Fair.
	11 39 a. m.	29. 39	82	85	29. 170	82	72	60	E.	3	.04	84	Hazy	....	0	0	0	.....	.....	.....	.....	Fair.

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Meteorological record for August 24, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 p. m.	23.94	70	65	23.84	65	59	68	N. W.	2	.02	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	2 0 p. m.	23.94	71	63	23.84	63	58	72	0	0	0	....	Hazy	....	Cumulus	3-4	N.	.....	.....	.....	....	Cloudy.
	3 0 p. m.	23.93	70	65	23.83	65	60	73	N. W.	4	.08	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Fair.
	4 14 p. m.	23.91	70	64	23.81	64	60	78	N. W.	4	.08	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	.....	....	Cloudy.
	5 0 p. m.	23.91	70	61	23.81	61	57	77	N. W.	4	.08	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	.....	....	Fair.
	6 0 p. m.	23.91	68	58	23.82	58	57	94	0	0	0	....	Hazy	....	Cumulus	2-4	0	.....	.....	.....	....	Fair.
	7 0 p. m.	23.91	63	57	23.83	57	56	94	N. W.	4	.08	....	Hazy	....	Cirrus ..	2-4	0	.....	.....	.....	....	Fair.
	8 0 p. m.	23.92	63	56	23.84	56	55	94	N. W.	4	.08	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	9 0 p. m.	23.92	65	55	23.83	55	54	93	N. W.	3	.04	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	10 0 p. m.	23.93	63	54	23.85	54	52	87	N. W.	4	.08	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	10 39 p. m.	23.92	62	53	23.84	53	51	87	N. W.	8	.32	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	12 0 p. m.	23.89	61	56	23.81	56	51	69	N. W.	4	.08	....	0	0	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
Base of Mount Mitchell, N. C..	1 0 p. m.	27.59	81	81	27.44	81	73	66	0	0	0	....	0	0	Cumulus	1-4	E.	.....	.....	.....	....	Clear.
	2 0 p. m.	27.59	84	81	27.43	81	74	70	0	0	0	....	0	0	Cumulus	1-4	N. E.	.....	.....	.....	....	Fair.
	3 0 p. m.	27.58	84	78	27.42	78	75	86	0	0	0	....	Hazy	....	Cumulus	1 4	N. E.	.....	.....	.....	....	Fair.
	4 14 p. m.	27.56	81	73	27.41	73	70	85	0	0	0	....	Hazy	....	Cumulus	1-4	N. E.	.....	.....	.....	....	Fair.
	5 0 p. m.	27.57	80	71	27.42	71	69	90	0	0	0	....	Hazy	....	Cumulus	1-4	0	.....	.....	.....	....	Clear.
	6 0 p. m.	27.55	75	64	27.41	64	62	89	0	0	0	....	Hazy	....	0	0	0	.....	.....	.....	....	Clear.
	7 0 p. m.	27.56	73	62	27.43	62	61	94	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	8 0 p. m.	27.57	71	60	27.44	60	59	94	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	9 0 p. m.	27.56	68	59	27.44	59	57	88	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	10 0 p. m.	27.56	68	57	27.44	57	55	87	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	10 39 p. m.	27.56	67	56	27.44	56	55	93	0	0	0	...	0	0	0	0	0	.....	.....	.....	....	Clear.
	12 0 p. m.	27.55	65	55	27.44	55	54	93	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
Knoxville, Tenn.	2 0 p. m.	29.28	86	88	29.120	87	72	45	S.	3	.04	....	Hazy	....	Cumulus	1-4	0	.....	.....	.....	....	Fair.
	4 7 p. m.	29.24	87	90	29.078	89	71	37	N.	4	.08	....	Hazy	....	Cumulus	1-4	0	.....	.....	.....	....	Fair.
	9 0 p. m.	29.24	82	77	29.091	76	72	82	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	10 33 p. m.	29.25	79	73	29.108	72	69	85	N.	1	.01	....	0	0	0	0	0	.....	.....	.....	....	Clear.

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Meteorological record for August 25, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM.		HYGROM.		Relative humidity.	WIND.			LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
			Attached.	Exposed.	Corrected barometer.	Dry bulb.	Wet bulb.		Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from—)	Commen'd.	Ended.			
Summit of Mount Mitchell, N. C.	1 0 a. m.	27.88	60	54	23.80	54	50	74	N. W.	8	.32	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	2 0 a. m.	27.87	62	53	23.79	53	52	93	W.	9	.32	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	3 0 a. m.	27.86	63	54	23.78	54	53	93	W.	12	.72	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Clear.
	4 0 a. m.	27.86	61	55	23.78	55	53	87	N. W.	20	2.00	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	5 0 a. m.	27.87	59	56	23.80	56	53	81	N. W.	12	.72	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	....	....	Fair.
	6 0 a. m.	27.87	60	56	23.79	56	53	81	N. W.	8	.32	....	Dense haze	....	0	....	0	.....	.....	....	....	Fair.
	7 14 a. m.	27.87	61	58	23.79	58	54	76	N. W.	8	.32	....	Hazy	....	Cumulus	1-4	0	.....	.....	....	....	Fair.
	8 0 a. m.	27.86	61	59	23.80	59	55	76	N. W.	4	.08	....	Hazy	....	Cumulus	1-4	N. W.	.....	.....	....	....	Fair.
	9 0 a. m.	27.88	64	62	23.80	62	57	72	N. W.	4	.08	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	10 0 a. m.	27.88	64	62	23.80	62	57	72	N. W.	4	.08	....	Hazy	....	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	11 0 a. m.	27.87	66	66	23.78	66	59	64	N. W.	4	.08	....	Hazy	....	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	12 0 m ..	27.86	67	67	23.77	67	60	64	W.	6	.18	138	Hazy	....	0	....	0	.....	.....	....	....	Clear.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.54	63	55	27.43	55	53	87	W.	0	0	....	0	0	0	....	0	.....	.....	....	....	Clear.
	2 0 a. m.	27.53	62	53	27.43	53	52	93	0	0	0	....	0	0	0	....	0	.....	.....	....	....	Clear.
	3 0 a. m.	27.52	62	52	27.42	53	51	93	0	0	0	....	0	0	0	....	0	.....	.....	....	....	Clear.
	4 0 a. m.	27.52	61	53	27.42	53	51	93	0	0	0	....	0	0	0	....	0	.....	.....	....	....	Clear.
	5 0 a. m.	27.53	59	53	27.43	53	53	93	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	27.53	59	55	27.43	55	54	93	0	0	0	....	Fog	....	Hazy	....	.....	.....	.....	....	....	Fair.
	7 14 a. m.	27.51	61	65	27.42	65	62	84	0	0	0	....	Hazy	....	Hazy	....	.....	.....	.....	....	....	Fair.
	8 0 a. m.	27.52	64	74	27.41	74	61	65	0	0	0	....	Hazy	....	Hazy	....	.....	.....	.....	....	....	Clear.
	9 0 a. m.	27.52	69	75	27.40	73	67	64	0	0	0	....	Hazy	....	Cumulus	1-4	0	.....	.....	....	....	Clear.
	10 0 a. m.	27.52	74	79	27.39	79	70	63	0	0	0	....	Hazy	....	Cumulus	1-4	W.	.....	.....	....	....	Clear.
	11 0 a. m.	27.52	78	81	27.38	82	69	53	0	0	0	....	0	0	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	12 0 m ..	27.51	79	82	27.36	82	70	52	0	0	0	....	0	0	Cumulus	2-4	N. E.	.....	.....	....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.23	71	69	29.110	69	66	90	N.	3	.04	....	Hazy	....	0	....	0	.....	.....	....	....	Fair.
	7 7 a. m.	29.23	71	69	29.110	66	66	90	N.	3	.04	....	Hazy	....	0	....	0	.....	.....	....	....	Fair.
	11 39 a. m.	29.23	84	84	29.075	83	73	63	S. W.	5	.12	78	Hazy	....	Cumulus	1-4	W.	.....	.....	....	....	Fair.

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Meteorological record for August 25, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM.		HYGROM.		Relative humidity.	WIND.			LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.		Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
			Attached.	Exposed.	Dry bulb.	Wet bulb.		Direction.	Velocity per hour.	Free sure per sq. ft.	Kind.	Amount.	Kind.	Amount.	Direction. (motion from—)	Commenced.	Ended.			
Summit of Mount Mitchell, N.C.	1 0 p. m.	23.86	72	66	66	58	59	W.	8	.32	Hazy		Cumulus	2-4	N. W.					Fair.
	2 0 p. m.	23.85	72	66	66	59	64	W.	8	.32	Hazy		Cumulus	2-4	N. W.					Fair.
	3 0 p. m.	23.84	73	65	65	60	73	W.	6	.18	Fog		Cumulus	2-4	W.					Fair.
	4 14 p. m.	23.83	73	63	63	58	72	W.	4	.08	Hazy		Cumulus	3-4						Cloudy.
	5 0 p. m.	23.82	69	59	59	57	86	N. W.	4	.08	Hazy		Cumulus	4-4						Cloudy.
	6 0 p. m.	23.82	68	58	58	57	94	N. W.	8	.32	Hazy		Cumulus	4-4						Cloudy.
	7 0 p. m.	23.80	68	58	58	58	100	N. W.	12	.72	Fog		Hidden			6.30 p. m.	6.50 p. m.	.03		Foggy.
	8 0 p. m.	23.82	68	58	58	58	100	N. W.	12	.72	Fog		Hidden							Foggy.
	9 0 p. m.	23.82	67	57	57	57	100	N. W.	2	.02	Fog		Hidden							Foggy.
	10 0 p. m.	23.81	65	57	57	56.5	97	N. W.	16	1.93	Fog		Hidden							Foggy.
	39 p. m.	23.80	65	57	56		94	N. W.	20	2.00	Fog		Hidden							Foggy.
	12 0 p. m.	23.78	63	56	55	56	94	N. W.	18	1.62	Fog		Hidden							Foggy.
	1 0 p. m.	27.51	82	81	81	70	55	N.	0	0	Hazy		Cumulus	2-4	W.					Fair.
	2 0 p. m.	27.49	83	78	78	69	69	N.	0	0	Hazy		Cumulus	3-4	W.					Fair.
	3 0 p. m.	27.47	83	80	80	71	55	N.	0	0	Hazy		Cumulus	2-4	W.					Fair.
	14 p. m.	27.46	82	79	79	73	82	N.	0	0	Hazy		Cumulus	2-4	W.					Fair.
	5 0 p. m.	27.45	81	78	76	73	91	N.	0	0	Hazy		Cumulus	1-4	W.					Fair.
	6 0 p. m.	27.44	76	73	73	71	95	N.	0	0	Hazy		Cumulus	1-4	0					Cloudy.
	7 0 p. m.	27.45	78	69	69	68	95	N.	0	0	Stratus	3-4	Hidden							Clear.
	8 0 p. m.	27.46	77	68	68	67	95	N.	0	0	0	0	0	0	0					Fair.
	9 0 p. m.	27.46	76	66	66	65	94	N.	0	0	Stratus	1-4	0	0	0					Clear.
	10 39 p. m.	27.45	74	66	66	64	89	N.	0	0	0	0	0	0	0					Clear.
	12 0 p. m.	27.44	73	65	65	64	89	N.	0	0	Stratus	1-4	0	0	0					Fair.
	2 0 p. m.	29.18	87	68	67	64	94	S. W.	8	.32	Stratus	1-4	Cumulus	3-4	W.					Cloudy.
	4 7 p. m.	29.14	84	68	67	74	53	W.	12	.72	Stratus	1-4	Cirrus	3-4	0					Cloudy.
Knoxville, Tenn.	9 0 p. m.	29.13	80	78	77	72	77	S. W.	4	.08	Stratus	4-4	Hidden							Cloudy.
	10 32 p. m.	29.13	79	76	75	72	85	S. W.	8	.32	Stratus	3-4	Hazy							Cloudy.

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Meteorological record for August 26, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from.)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.75	63	57	23.67	57	57	100	N. W.	18	1.62	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23.76	62	57	23.68	57	57	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.76	62	57	23.68	57	57	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23.75	61	56	23.67	56	56	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23.75	61	56	23.67	56	56	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	23.76	63	57	23.68	57	57	100	N. W.	24	2.88	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23.77	64	57	23.69	57	57	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 a. m.	23.77	62	57	23.69	57	57	100	N. W.	22	2.42	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 a. m.	23.78	63	58	23.70	58	58	100	N. W	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 a. m.	23.79	64	60	23.71	60	59	94	N. W.	20	2.00	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	11 0 a. m.	23.80	65	61	23.71	61	59	88	N. W.	8	.32	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	12 0 m.	23.80	68	62	23.71	62	60	88	N. W.	12	.72	342	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.42	71	65	27.29	65	63	89	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear.
	2 0 a. m.	27.40	71	65	27.27	65	63	89	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear.
	3 0 a. m.	27.40	70	66	27.28	66	64	79	S. E.	2	.02	....	Stratus	3-4	0	0	0	.....	.....	....	....	Fair.
	4 0 a. m.	27.40	71	62	27.27	62	61	94	E.	4	.08	....	Stratus	1-4	0	0	0	.....	.....	....	....	Fair.
	5 0 a. m.	27.40	72	71	27.27	71	66	75	N. E.	4	.08	....	Stratus	2-4	Cumulus	1-4	0	.....	.....	....	....	Fair.
	6 0 a. m.	27.42	72	71	27.29	71	68	85	N. E.	1	.01	....	0	0	Cumulus	3-4	W.	.....	.....	....	....	Fair.
	7 14 a. m.	27.42	73	74	27.29	74	69	76	0	0	0	....	0	0	Cir. & cu	3-4	W.	.....	.....	....	....	Fair.
	8 0 a. m.	27.42	74	72	27.29	72	68	72	E.	4	.08	....	0	0	Cir. & cu	3-4	W.	.....	.....	....	....	Cloudy.
	9 0 a. m.	27.43	75	79	27.29	79	71	66	E.	3	.04	....	0	0	Cir. & cu	3-4	W.	.....	.....	....	....	Fair.
	10 0 a. m.	27.44	77	80	27.30	80	70	58	E.	2	.02	....	0	0	Cir. & cu	3-4	N. W.	.....	.....	....	....	Fair.
	11 0 a. m.	27.43	79	78	27.28	78	69	61	0	0	0	....	0	0	Cirrus Cumulus	1-4 2-4	E. W.	.....	.....	....	....	Fair.
	12 0 m.	27.43	80	81	27.28	81	70	55	0	0	0	10	0	0	Cirrus Cumulus	1-4 2-4	E. W.	.....	.....	....	....	Fair.
Knoxville, Tenn	7 0 a. m.	29.15	77	74	29.014	73	71	90	0	0	0	....	Hazy	....	Cir.-cum	2-4	W.	.....	.....	....	....	Fair.
	7 7 a. m.	29.15	77	74	29.014	73	71	90	0	0	0	....	Hazy	....	Cir.-cum	2-4	W.	.....	.....	....	....	Fair.
	11 39 a. m.	29.15	85	85	28.994	85	75	61	S. W.	12	.72	142	0	0	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.

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Meteorological record for August 26, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Comm'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.79	71	64	23.69	64	60	78	N. W.	12	.72	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	2 0 p. m.	23.77	69	66	23.68	66	62	79	N. W.	18	.32	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	3 0 p. m.	23.75	67	65	23.66	65	61	78	N. W.	12	.72	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	4 14 p. m.	27.75	69	64	23.66	64	61	83	N. W.	4	.08	....	Hazy	....	Cumulus	3-4	N W.	.....	.....	....	....	Cloudy.
	5 0 p. m.	23.76	68	62	23.67	62	60	88	N. W.	6	.18	....	Hazy	....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	6 0 p. m.	23.75	68	59	23.66	59	58	94	N. W.	12	.72	....	Hazy	....	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.
	7 0 p. m.	23.76	65	53	23.67	53	53	100	N. W.	24	2.88	....	Nimbus	4-4	Hidden	....	.....	6.40 p. m.	.....	.05	....	Heavy rain.
	8 0 p. m.	23.75	66	55	23.66	55	55	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	7.20 p. m.	.06	....	Foggy.
	9 0 p. m.	23.75	68	56	23.66	56	55.5	97	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 p. m.	23.74	66	57	23.64	57	56	94	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 39 p. m.	23.73	64	57	23.65	57	56	94	N. W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 p. m.	23.70	62	56	23.62	56	56	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.44	82	82	27.29	82	70	52	0	0	0	....	0	0	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.
	2 0 p. m.	27.41	84	83	27.25	83	70	40	0	0	0	....	0	0	Cumulus	3-4	W.	.....	.....	....	....	Fair.
	3 0 p. m.	27.40	87	83	27.24	83	73	60	N. E.	2	.02	....	0	0	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	4 14 p. m.	27.38	85	80	27.22	80	73	70	N. E.	1	.01	....	0	0	Cumulus	2-4	N. E	.....	.....	....	....	Fair.
	5 0 p. m.	27.41	84	77	27.25	77	73	82	0	0	0	....	0	0	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	6 0 p. m.	27.38	81	71	27.23	71	70	95	0	0	0	....	Stratus	1-4	Cumulus	1-4	N. W.	.....	.....	....	....	Fair.
	7 0 p. m.	27.39	79	69	27.24	69	68	95	0	0	0	....	Stratus	1-4	Cumulus	1-4	W.	.....	.....	....	....	Fair.
	8 0 p. m.	27.42	75	64	27.28	64	62	89	0	0	0	....	Nimbus	4-4	Hidden	....	.....	7.30 p. m.	.....	.14	....	Light rain.
	9 0 p. m.	27.39	74	64	27.26	64	62	89	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	8.10 p. m.	....	....	Cloudy.
	10 0 p. m.	27.39	72	62	27.26	62	61	94	0	0	0	....	Stratus	2-4	0	0	0	.....	.....	....	....	Fair.
	10 39 p. m.	27.35	71	62	27.22	62	61	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	12 0 p. m.	27.37	70	63	27.25	63	62	94	0	0	0	....	Stratus	2-4	0	0	0	.....	.....	....	....	Fair.
Knoxville, Tenn.	2 0 p. m.	29.10	88	89	28.936	88	73	46	W.	10	.50	....	0	0	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	4 7 p. m.	29.07	88	90	28.906	89	75	49	S. W.	12	.72	....	0	0	Cu. & cir.	2-4	W.	.....	.....	....	....	Fair.
	9 0 p. m.	29.09	77	70	28.054	69	68	95	S. W.	4	.08	....	Stratus	4-4	Hazy	....	.....	.....	.....	....	....	Cloudy.
	10 32 p. m.	29.10	78	70	28.962	69	68	95	S.	4	.08	....	Stratus	4-4	Hidden	....	.....	7.30 p. m.	9.00 p. m.	.74	....	Cloudy.

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Meteorological record for August 27, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.70	61	56	23.62	56	56	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23.69	60	55	23.61	55	55	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.69	60	55	23.61	55	55	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	4 0 a. m.	23.68	60	54	23.60	54	54	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	5 0 a. m.	23.69	61	55	23.61	55	55	100	N. W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	23.71	66	55	23.62	55	55	100	N. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23.73	63	54	23.65	54	53	93	N. W.	16	1.28	....	Hazy	....	Cumulus.	3-4	N. W.	.....	.....	....	....	Cloudy.
	8 0 a. m.	23.74	62	56	23.66	56	54	87	N. W.	12	.72	....	Hazy	....	Cumulus.	3-4	N. W.	.....	.....	....	....	Cloudy.
	9 0 a. m.	23.76	64	57	23.68	57	54	81	N. W.	14	.98	....	Hazy	....	Cumulus.	2-4	N. W.	.....	.....	....	....	Fair.
	10 0 a. m.	23.75	62	58	23.67	58	54	76	N. W.	12	.72	....	Hazy	....	Cir. & cu.	2-4	W.	.....	.....	....	....	Fair.
	11 0 a. m.	23.78	64	62	23.70	62	58	77	N. W.	12	.72	....	Hazy	....	Cir. & cu.	2-4	0	.....	.....	....	....	Fair.
	12 0 m ..	23.78	68	62	23.69	62	58	77	N. W.	8	.32	358	Hazy	....	Cir. & cu.	2-4	N. W.	.....	.....	....	....	Fair.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.36	70	62	27.24	62	61	94	0	0	0	....	Stratus ...	2-4	0	0	0	.....	.....	....	....	Fair.
	2 0 a. m.	27.35	70	63	27.23	63	61	89	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	3 0 a. m.	27.35	70	62	27.23	62	61	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	4 0 a. m.	27.36	69	63	27.24	63	62	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	5 0 a. m.	27.36	69	63	27.24	63	62	94	0	0	0	....	Fog	....	Cir. & cu	2-4	W.	.....	.....	....	....	Fair.
	6 0 a. m.	27.37	68	63	27.25	63	61	89	0	0	0	....	Fog	....	Cumulus.	1-4	W.	.....	.....	....	....	Fair.
	7 14 a. m.	27.36	69	69	27.24	69	66	85	E.	1	.01	....	0	0	Cir. & cu.	3-4	W.	.....	.....	....	....	Fair.
	8 0 a. m.	27.38	71	73	27.25	73	69	80	E.	1	.01	....	0	0	Cir. & cu.	3-4	W.	.....	.....	....	....	Fair.
	9 0 a. m.	27.40	73	72	27.27	72	69	85	0	0	0	....	Stratus ...	1-4	Cirrus...	2-4	W.	.....	.....	....	....	Fair.
	10 0 a. m.	27.42	75	78	27.28	78	69	61	E.	1	.01	....	Stratus ...	1-4	Cirrus...	2-4	W.	.....	.....	....	....	Fair.
	11 0 a. m.	27.43	77	79	27.29	79	68	54	E.	1	.01	....	0	0	Cir. & cu.	3-4	W.	.....	.....	....	....	Fair.
	12 0 m ..	27.42	80	80	27.27	80	69	55	E.	1	.01	10	0	0	Cir. & cu.	2-4	W.	.....	.....	....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.12	75	70	28.992	69	67	90	S.	3	.04	....	Stratus ...	1-4	Cirrus...	4-4	0	.....	.....	....	....	Clearing.
	7 7 a. m.	29.12	75	70	28.992	69	67	90	S.	4	.08	....	Stratus ...	1-4	Cirrus...	4-4	0	5.10 a. m.	5.25 a. m.	.04	....	Clearing.
	11 39 a. m.	29.14	81	80	28.994	79	73	69	S.	4	.08	168	0	0	Cirrus...	1-4	0	0	.....	....	....	Fair.

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Meteorological record for August 27, 1873.—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	The thermometer's daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.78	70	64	27.68	64	59	73	N. W.	8	.32	...	Hazy	...	Cir. & cu.	2-4	0	...	...	...	...	Fair.
	2 0 p. m.	23.68	70	66	27.58	66	60	60	W.	4	.09	...	Hazy	...	Cumulus	3-4	N. W.	...	...	...	...	Cloudy.
	3 0 p. m.	23.69	69	63	27.59	63	54	72	W.	4	.08	...	Hazy	...	Cumulus	3-4	W.	...	...	...	...	Cloudy.
	4 14 p. m.	23.67	68	62	27.57	62	59	83	W.	4	.08	...	Hazy	...	Cumulus	3-4	W.	...	...	...	...	Cloudy.
	5 0 p. m.	23.77	65	61	27.68	61	56	78	W.	2	.02	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	6 0 p. m.	23.76	68	59	27.67	59	57	88	W.	4	.08	...	Hazy	0	Cir. & cu.	3-4	0	...	...	...	...	Cloudy.
	7 0 p. m.	23.77	65	57	27.66	57	54	91	W.	4	.08	...	...	0	Cumulus	4-4	0	...	...	...	...	Cloudy.
	8 0 p. m.	23.79	69	57	27.70	57	56	94	W.	4	.08	...	...	0	Cumulus	4-4	0	...	...	...	...	Cloudy.
	9 0 p. m.	23.79	68	56	27.70	56	53	94	W.	4	.08	...	...	0	Cumulus	4-4	0	...	...	...	...	Cloudy.
	10 0 p. m.	23.80	68	56	27.71	56	53	94	S. W.	4	.08	...	Light fog	...	Cumulus	4-4	0	...	...	...	...	Cloudy.
	10 39 p. m.	23.79	68	55	27.70	55	53	100	S. W.	8	.32	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	12 0 p. m.	23.79	68	53	27.70	53	53	100	S. W.	4	.08	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	1 0 p. m.	27.43	84	81	27.28	81	70	53	E.	0	0	0	0	0	Cirrus	2-4	N. W.	...	...	...	...	Fair.
	2 0 p. m.	27.40	84	81	27.24	81	71	59	E.	2	.02	...	0	0	Cumulus	2-4	W.	...	...	...	...	Fair.
	3 0 p. m.	27.40	85	80	27.24	80	70	58	E.	0	0	0	0	0	Cumulus	2-4	W.	...	...	...	...	Fair.
	4 14 p. m.	27.40	83	78	27.24	78	71	69	E.	0	0	0	0	0	Cumulus	2-4	W.	...	...	...	...	Fair.
	5 0 p. m.	27.40	80	75	27.25	75	71	81	S.	0	0	0	Stratus	1-4	Cirrus	1-4	0	...	...	...	...	Cloudy.
	6 0 p. m.	27.39	79	72	27.21	72	71	95	S.	0	0	0	Stratus	3-4	Hidden	...	...	...	...	...	...	Cloudy.
	7 0 p. m.	27.41	77	69	27.27	69	67	90	S.	0	0	0	Stratus	4-4	Hidden	...	...	...	...	...	...	Cloudy.
	8 0 p. m.	27.41	76	68	27.27	68	66	93	S.	0	0	0	Stratus	4-4	Hidden	...	...	...	...	...	...	Cloudy.
	9 0 p. m.	27.42	75	67	27.28	67	66	93	S.	0	0	0	Stratus	4-4	Hidden	...	...	...	...	...	...	Cloudy.
	10 0 p. m.	27.44	74	68	27.31	68	66	89	S.	0	0	0	Stratus	4-4	Hidden	...	...	...	...	...	...	Cloudy.
	10 39 p. m.	27.44	74	68	27.31	68	66	89	S.	0	0	0	Nimbus	4-4	Hidden	...	...	10.37 p. m.	...	...	...	Heavy rain.
	12 0 p. m.	27.43	73	66	27.30	66	65	94	S.	0	0	0	Stratus	4-4	Hidden	...	...	...	11.15 p. m.	.17	...	Cloudy.
Knoxville, Tenn.	2 0 p. m.	26.10	83	84	26.049	83	71	53	S.	4	.08	...	Stratus	1-4	Cir. & cu.	3-4	W.	...	...	...	...	Cloudy.
	4 7 p. m.	26.08	82	80	26.042	79	71	63	N. W.	8	.32	...	Stratus	4-4	Hidden	...	...	...	...	...	...	Cloudy.
	9 0 p. m.	26.13	77	72	26.094	71	69	90	S. W.	4	.08	...	Stratus	1-4	Hazy	...	0	...	...	...	...	Fair.
	10 39 p. m.	26.10	77	71	26.064	70	68	90	S. W.	6	.18	...	Stratus	1-4	0	0	0	...	...	...	...	Fair.

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Meteorological record for August 28, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.77	66	54	23.68	54	54	100	S. W.	4	.08	...	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	23.76	64	54	23.68	54	54	100	S. W.	8	.32	....	Fog	...	Hidden	....	.....	.....	.....	....	....	Foggy.
	3 0 a. m.	23.76	67	53	23.67	53	53	100	S. W.	4	.08	....	Light fog	....	Cumulus	2-4	0	.....	.....	....	....	Fair.
	4 0 a. m.	23.77	65	53	23.68	53	53	100	S. W.	8	.32	....	Light fog	....	Cir. & cu.	3-4	0	.....	.....	....	....	Foggy.
	5 0 a. m.	23.79	62	53	23.71	53	52	93	S. W.	10	.50	...	Hazy	....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	6 0 a. m	23.79	60	54	23.71	54	53	93	S. W.	16	1.28	....	Fog	....	Cumulus	3-4	0	.....	.....	....	....	Foggy.
	7 14 a. m.	23.79	59	54	23.72	54	53.5	97	S. W.	8	.32	....	Fog	....	Cumulus	3-4	S.	.....	.....	....	....	Foggy.
	8 0 a. m.	23.79	60	55	23.71	55	55	100	S. W.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 a. m.	23.81	60	56	23.73	56	56	100	S. W.	4	.02	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 a. m.	23.81	61	58	23.73	58	56.5	91	S. W.	8	.32	...	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	11 0 a. m.	23.82	66	59	23.73	59	58	94	S. E.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 m ..	23.82	63	57	23.74	57	56	94	E.	4	.08	146	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.44	72	65	27.31	65	64	94	E.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	2 0 a. m.	27.44	71	65	27.31	65	64	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	3 0 a. m.	27.45	70	65	27.33	65	63	89	0	0	0	....	Stratus	4-4	Hidden	....	.....	2.50 a. m.	.....	....	....	Light rain.
	4 0 a. m.	27.45	71	64	27.32	64	63	94	0	0	0	....	Stratus	4-4	Hidden	..	.....	.....	3.10 a. m.	.01	....	Cloudy.
	5 0 a. m.	27.46	71	64	27.33	64	63	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	6 0 a. m.	27.46	70	64	27.34	64	63	94	0	0	0	...	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	7 14 a. m.	27.49	69	65	27.37	65	63	89	S.	1	.01	...	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	8 0 a. m.	27.50	69	64	27.38	64	63	94	0	0	0	...	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	9 0 a. m.	27.52	70	65	27.40	65	63	89	E.	2	.02	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	10 0 a. m.	27.53	69	65	27.41	65	63	89	E.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Cloudy.
	11 0 a. m.	27.53	69	66	27.41	66	64	89	S. E.	4	.08	....	Stratus	4-4	Hidden	....	.....	.....	.....	....	....	Light rain.
	12 0 m ..	27.53	69	65	27.41	65	63	89	0	0	0	7	Nimbus	4-4	Hidden	....	.....	12.00 m.	.....	....	....	
Knoxville, Tenn.	7 0 m .	29.17	75	69	29.040	67	66	90	W.	3	.04	...	0	0	Cirrus ..	1-4	S. W.	.....	.....	....	....	Fair.
	7 7 a. m.	29.17	75	69	29.040	68	66	90	W.	3	.04	.	0	0	Cirrus ..	1-4	S. W.	.....	.....	....	....	Fair.
	11 32 a. m.	29.20	81	79	29.054	78	70	65	S.	10	.50	114	0	0	Cumulus	4-4	W.	.....	.....	....	....	Cloudy.

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Meteorological record for August 28, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.83	65	60	23.74	60	59	94	S. E.	6	.18	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	2 0 p. m.	23.81	66	58	23.72	58	57	94	S. E.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	3 0 p. m.	23.80	63	60	23.72	60	58	88	S. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	4 14 p. m.	23.81	66	56	23.72	56	55	94	S. E.	4	.08	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 p. m.	23.80	65	55	23.71	55	55	100	N. E.	2	.02	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 p. m.	23.81	63	53	23.73	53	53	100	E.	8	.32	....	Nimbus	4-4	Hidden	....	.....	5.37 p. m.	.....	.11	....	Light rain.
	7 0 p. m.	23.82	65	52	23.73	52	52	100	E.	16	1.28	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.13	....	Light rain.
	8 0 p. m.	23.83	64	51	23.75	51	51	100	E.	14	.98	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.09	....	Light rain.
	9 0 p. m.	23.84	67	50	23.75	50	49.5	96	S. E.	8	.32	....	Light fog	....	Cumulus	2-4	0	.....	8.10 p. m.	.01	....	Fair.
	10 0 p. m.	23.86	66	50	23.77	50	49	93	S. E.	10	.50	....	Light fog	....	0	0	0	.....	.....	.....	....	Fair.
	10 39 p. m.	23.86	66	51	23.77	51	50	93	E.	2	.02	....	Light fog	....	0	0	0	.....	.....	.....	....	Fair.
	12 0 p. m.	23.86	67	50	23.77	50	49	93	E.	2	.02	....	Fog	....	0	0	0	.....	.....	.....	....	Foggy.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.53	69	66	27.41	66	64	89	S. E.	1	.01	....	Nimbus	4-4	Hidden	....	.....	.....	1.30 p. m.	.02	....	Light rain.
	2 0 p. m.	27.50	70	69	27.38	69	67	90	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	3 0 p. m.	27.49	69	67	27.37	67	65	89	E.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	4 14 p. m.	27.49	70	65	27.37	65	64	94	S. E.	1	.01	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	5 0 p. m.	27.50	70	65	27.38	65	63	89	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	6 0 p. m.	27.50	70	65	27.38	65	64	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Threatening.
	7 0 p. m.	27.52	69	63	27.40	63	62	94	0	0	0	....	Nimbus	4-4	Hidden	....	.....	6.10 p. m.	.....	.02	....	Drizzling rain.
	8 0 p. m.	27.53	69	63	27.41	63	62	94	0	0	0	....	Nimbus	4-4	Hidden	....	.....	.....	8.15 p. m.	.01	....	Drizzling rain.
	9 0 p. m.	27.55	68	63	27.43	63	62	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	10 0 p. m.	27.55	68	63	27.43	63	62	94	0	0	0	....	Nimbus	4-4	Hidden	....	.....	.....	.....	.....	....	Misting.
	10 39 p. m.	27.55	68	63	27.43	63	62	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	12 0 p. m.	27.56	67	62	27.44	62	61	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
Knoxville, Tenn.	2 0 p. m.	29.09	82	81	29.942	80	70	58	S. W.	10	.50	....	0	0	Cumulus	4-4	S.	.....	.....	.....	....	Cloudy.
	4 7 p. m.	29.16	82	81	29.012	80	73	66	S. W.	8	.32	....	0	0	Cumulus	4-4	S. W.	.....	.....	.....	....	Cloudy.
	9 0 p. m.	29.17	78	74	29.032	73	71	90	S. W.	6	.18	....	Stratus	1-4	0	0	0	.....	.....	.....	....	Fair.
	10 32 p. m.	29.21	77	72	29.074	71	69	90	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.

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Meteorological record for August 29, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.85	68	50	23.76	50	50	100	0	0	0	...	Fog	....	Hidden	....	.....	.....	.....	...	...	Foggy.
	2 0 a. m.	23.85	63	49	23.75	49	49	100	S. W.	18	1.62	...	0	0	Cirrus ..	1-4	0	.....	.....	...	...	Fair.
	3 0 a. m.	23.83	64	50	23.75	50	49	93	S. W.	18	1.62	...	0	0	Cirrus ..	1-4	0	.....	.....	...	...	Fair.
	4 0 a. m.	23.84	61	50	23.76	50	49	93	S. W.	12	.72	...	Light fog	....	Cirrus ..	1-4	0	.....	.....	...	...	Fair.
	5 0 a. m.	23.85	61	51	23.77	51	50	93	S. W.	12	.72	...	Light fog	...	Cirrus ..	3-4	0	.....	.....	...	...	Foggy.
	6 0 a. m.	23.86	57	51	23.79	51	50	93	S. W.	16	1.28	...	Light fog	...	Clr. & cu.	3-4	S. W.	.....	.....	..	...	Cloudy.
	7 14 a. m.	23.84	60	53	23.80	53	52.5	97	S. W.	12	.72	...	Fog	....	Hidden	....	.....	.....	.....	...	...	Foggy.
	8 0 a. m.	23.89	61	55	23.81	55	54	93	S. W.	8	.32	....	Light fog	.	Cumulus	1-4	0	.....	.....	...	...	Fair.
	9 0 a. m.	23.90	60	56	23.82	56	55	94	S. W.	4	.08	....	0	0	Cumulus	3-4	0	.....	.....	...	...	Cloudy.
	10 0 a. m.	23.91	60	60	23.83	60	58	88	S. W.	4	.08	....	Fog	...	Cumulus	3-4	S. W.	.....	.....	...	...	Cloudy.
	11 0 a. m.	23.92	60	60	23.84	60	57	82	S. W.	6	.18	....	Fog	...	Cumulus	3-4	S. W.	.....	.....	...	...	Cloudy.
	12 0 m ..	23.90	61	59	23.82	59	56	82	S. W.	4	.08	202	Light fog	...	Cumulus	3-4	S. W.	.....	.....	...	...	Cloudy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.56	67	62	27.44	62	61	94	0	0	0	...	Stratus ..	4-4	Hidden	....	.....	.....	.....	...	...	Cloudy.
	2 0 a. m.	27.55	66	61	27.44	61	60	94	0	0	0	...	Stratus ...	4-4	Hidden	....	.....	.....	.....	...	...	Cloudy.
	3 0 a. m.	27.55	66	61	27.44	61	60	94	0	0	0	...	Stratus ..	4-4	Hidden	....	.....	.....	.....	...	...	Cloudy.
	4 0 a. m.	27.58	66	61	27.47	61	60	94	0	0	0	...	Stratus ...	4-4	Hidden	....	.....	.....	.....	...	...	Cloudy.
	5 0 a. m.	27.57	66	61	27.46	61	60	94	0	0	0	...	Stratus ...	4-4	Hidden	....	.....	.....	.....	...	...	Cloudy.
	6 0 a. m.	27.59	66	61	27.48	61	60	94	0	0	0	...	Stratus ...	4-4	Hidden	....	.....	.....	.....	...	...	Cloudy.
	7 14 a. m.	27.59	66	63	27.48	63	61	88	0	0	0	...	Stratus ...	4-4	Hidden	....	.....	.....	.....	...	...	Cloudy.
	8 0 a. m.	27.60	66	64	27.49	64	61	83	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	...	...	Cloudy.
	9 0 a. m.	27.61	67	65	27.49	65	62	84	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	...	...	Cloudy.
	10 0 a. m.	27.61	68	68	27.49	68	64	79	0	0	0	...	0	0	Cumulus	3-4	N.	.....	.....	...	...	Fair.
	11 0 a. m.	27.62	71	72	27.49	72	67	76	E.	1	.01	...	0	0	Cumulus	3-4	W.	.....	.....	...	...	Fair.
	12 0 m ..	27.62	72	71	27.49	71	66	75	0	0	0	11	Stratus ...	2-4	Cumulus	2-4	0	.....	.....	...	...	Cloudy.
Knoxville, Tenn.	7 0 a. m.	29.30	73	67	29.177	66	65	92	N. E.	5	.12	....	Stratus ...	1-4	Cumulus	3-4	S. W.	.....	.....	...	...	Cloudy.
	7 7 a. m.	29.30	73	67	29.177	66	65	92	N. E.	5	.12	....	Stratus ...	1-4	Cumulus	3-4	S. W.	.....	.....	...	...	Cloudy.
	11 32 a. m.	29.34	81	79	29.193	78	70	65	S. W.	12	.72	161	0	0	Cumulus	4-4	S. W.	.....	.....	...	...	Cloudy.

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Meteorological record for August 29, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.90	64	60	23.82	60	56	77	S.W.	2	.02	..	Light fog	.....	Cumulus	3-4	S.W.	.....	.....	...	...	Cloudy.
	2 0 p. m.	23.90	63	60	23.82	60	57	82	S.W.	4	.02	....	Light fog	.....	Cumulus	3-4	S.W.	.....	.....	...	...	Cloudy.
	3 0 p. m.	23.91	66	62	23.82	62	58	77	W.	6	.18	....	Light fog	.....	Cumulus	3-4	S.W.	.....	.....	...	...	Cloudy.
	4 14 p. m.	24.00	61	58	23.82	58	53	70	W.	14	.98	..	Light fog	.....	Cir. & cu	4-4	W.	3.15 p. m.	3.40 p. m.	.06	...	Cloudy.
	5 0 p. m.	23.89	61	57	23.81	57	52	69	W.	8	.32	....	0	0	Cirrus	2-4	0	.....	.....	...	...	Fair.
	6 0 p. m	23.90	61	55	23.82	55	52	81	W.	4	.08	..	0	0	Cir. & cu	2-4	0	.....	.....	...	...	Fair.
	7 0 p. m.	23.90	60	52	23.82	52	50	86	S.W.	12	.72	....	0	0	Cir. & cu	2-4	S.W.	.....	.....	...	...	Cloudy.
	8 0 p. m.	23.92	61	52	23.84	52	49	79	S.W.	10	.50	....	0	0	Cumulus	3-4	0	.....	.....	...	...	Cloudy.
	9 0 p. m.	23.94	60	51	23.86	51	49	86	S.W.	12	.72	....	0	0	Cir. & cu	2-4	0	.....	.....	...	...	Fair.
	10 0 p. m.	23.93	60	52	23.85	52	50	86	S.W.	12	.72	....	0	0	Cir. & cu	2-4	0	.....	.....	...	...	Fair.
	10 39 p. m.	23.93	60	52	23.85	52	51	93	S.W.	16	1.28	....	Light fog	.....	0	0	0	.....	.....	...	...	Fair.
	12 0 p. m.	23.91	59	51	23.84	51	50	93	S.W.	16	1.28	....	0	0	Cirrus	1-4	0	.....	.....	...	...	Fair.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.62	73	72	27.49	72	67	76	E.	1	.01	....	Stratus..	4-4	Hidden	....	.....	.....	.....	...	...	Cloudy.
	2 0 p. m.	27.61	74	70	27.48	70	66	80	E.	1	.01	....	Stratus..	4-4	Hidden	....	.....	.....	.....	...	...	Cloudy.
	3 0 p. m.	27.61	74	71	27.48	71	67	80	S. E.	1	.01	....	Stratus..	1-4	Cumulus	3-4	S.	.....	.....	...	...	Cloudy.
	4 14 p. m.	27.60	74	68	27.47	68	65	84	S. E.	1	.01	....	Stratus..	1-4	Cumulus	3-4	S. E.	.....	.....	...	...	Cloudy.
	5 0 p. m.	27.60	73	69	27.47	69	65	80	0	0	0	....	Stratus..	4-4	Hidden	....	.....	.....	.....	...	...	Cloudy.
	6 0 p. m.	27.59	72	68	27.46	68	65	84	0	0	0	....	Stratus..	4-4	Hidden	....	.....	.....	.....	...	...	Cloudy.
	7 0 p. m.	27.60	72	67	27.47	67	66	95	0	0	0	....	Stratus..	4-4	Hidden	....	.....	.....	.....	...	...	Cloudy.
	8 0 p. m.	27.63	72	67	27.50	67	65	89	0	0	0	....	Stratus..	4-4	Hidden	....	.....	.....	.....	...	...	Cloudy.
	9 0 p. m.	27.63	72	66	27.50	66	63	84	0	0	0	....	Stratus..	1-4	0	0	0	.....	.....	...	...	Fair.
	10 0 p. m.	27.63	71	64	27.50	64	62	89	0	0	0	....	Stratus..	2-4	0	0	0	.....	.....	...	...	Fair.
	10 39 p. m.	27.63	70	63	27.51	63	61	89	0	0	0	....	Stratus..	2-4	0	0	0	.....	.....	...	...	Fair.
	12 0 p. m.	27.62	69	62	27.50	62	60	88	0	0	0	....	Stratus..	2-4	0	0	0	.....	.....	...	...	Fair.
Knoxville, Tenn.	2 0 p. m.	29.30	82	83	29.151	83	71	53	S.W.	12	.72	....	0	0	Cumulus	2-4	S.W.	.....	.....	...	...	Fair.
	4 7 p. m.	29.29	84	85	29.135	84	71	50	S.	8	.32	....	0	0	Cumulus	1-4	S.W.	.....	.....	...	...	Fair.
	9 0 p. m.	29.31	78	75	29.170	74	70	81	S.W.	6	.18	....	0	0	Hazy	....	.....	.....	.....	...	...	Fair.
	10 22 p. m.	29.32	79	75	29.179	74	70	81	S.W.	8	.32	....	0	0	0	0	0	.....	.....	...	...	Clear.

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Meteorological record for August 30, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.91	60	51	23.83	51	50	93	S.W.	14	.98	...	Light fog	.....	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	2 0 a. m.	23.90	59	51	23.83	51	50	93	S.W.	16	1.28	...	Fog.....	.....	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	3 0 a. m.	23.90	58	51	23.83	51	51	100	S.W.	10	.50	...	Fog.....	.....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	4 0 a. m.	23.90	58	51	23.83	51	51	100	S.W.	12	.72	...	Fog.....	.....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	5 0 a. m.	23.90	57	52	23.83	52	52	100	S.W.	14	.98	...	Fog.....	.....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	6 0 a. m.	23.91	57	51	23.84	51	51	100	S.W.	14	.98	...	Fog.....	.....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	7 14 a. m.	23.93	63	52	23.85	52	52	100	N. W.	12	.72	...	Fog	.....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	8 0 a. m.	23.95	64	53	23.87	53	53	100	N. W.	10	.50	...	Fog.....	.....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	9 0 a. m.	23.96	65	53	23.87	53	53	100	N. W.	12	.72	...	Fog.....	.....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	10 0 a. m.	23.98	60	54	23.90	54	54	100	N. W.	8	.32	...	Fog.....	.....	Hidden	....	.....	.....	.....	.....	.....	Foggy.
	11 0 a. m.	23.97	61	60	23.89	60	59	94	N. W.	8	.32	...	Hazy	.....	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	12 0 m	23.96	62	61	23.88	61	53	83	W.	8	.32	244	Hazy	...	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.62	68	62	27.50	62	61	94	0	0	0	....	Stratus ...	2-4	0	0	0	.....	.....	.....	.....	Fair.
	2 0 a. m.	27.62	68	62	27.50	62	61	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	.....	Cloudy.
	3 0 a. m	27.62	67	62	27.50	62	61	94	0	0	0	....	Stratus ...	3-4	0	0	0	.....	.....	.....	.....	Cloudy.
	4 0 a. m.	27.62	67	62	27.50	62	61	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	.....	Cloudy.
	5 0 a. m.	27.63	67	62	27.51	62	61	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	.....	Cloudy.
	6 0 a. m.	27.64	67	62	27.52	62	61	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	.....	Cloudy.
	7 14 a. m.	27.66	67	64	27.54	64	62	89	0	0	0	....	Stratus ...	2-4	Cumulus	1-4	W.	.....	.....	.....	.....	Fair.
	8 0 a. m.	27.66	67	66	27.54	66	63	84	0	0	0	....	Stratus ...	1-4	Cumulus	2-4	W.	.....	.....	.....	.....	Fair.
	9 0 a. m.	27.67	69	72	27.55	72	67	76	0	0	0	....	0	0	Cumulus	3-4	W.	.....	.....	.....	.....	Fair.
	10 0 a. m	27.67	72	74	27.54	74	67	68	0	0	0	....	0	0	Cumulus	3-4	W.	.....	.....	.....	.....	Fair.
	11 0 a. m.	27.67	74	77	27.54	77	69	65	0	0	0	....	0	0	Cumulus	4-4	W.	.....	.....	.....	.....	Cloudy.
	12 0 m	27.66	77	73	27.52	73	66	67	N. W.	1	.01	8	0	0	Cumulus	3-4	N. W.	.....	.....	.....	.....	Fair.
Knoxville, Tenn.	7 0 a. m	29.39	75	71	29.258	70	68	90	S W.	2	.02	...	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	.....	Cloudy.
	7 7 a. m.	29.39	75	71	29.258	70	68	90	S.W.	2	.02	...	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	.....	Cloudy.
	11 38 a. m.	29.42	83	79	29.307	78	70	65	S.W.	8	.32	148	0	0	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.

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Meteorological record for August 30, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m	23.96	64	62	23.68	62	56	67	W.	9	.40	...	Hazy	....	Cumulus..	3-4	W.	.....	.....	.....	....	Cloudy.
	2 0 p. m.	23.96	67	65	23.87	65	58	63	W.	8	.32	...	Hazy	....	Cumulus..	3-4	W.	.....	.....	.....	....	Cloudy.
	3 0 p. m.	23.95	67	62	23.86	62	58	77	N. W.	6	.18	...	Hazy	....	Cumulus..	3-4	N. W.	.....	.....	.....	....	Cloudy.
	4 14 p. m.	23.93	64	59	23.85	59	56	82	W.	8	.32	....	Hazy	....	Cumulus..	3-4	W.	.....	.....	.....	....	Cloudy.
	5 0 p. m	23.93	65	57	23.84	57	54	81	N. W.	8	.32	....	Hazy	....	Cumulus..	3-4	N. W.	.....	.....	.....	....	Cloudy.
	6 0 p. m.	23.94	66	57	23.85	57	54	81	N. W.	8	.32	....	Hazy	....	Cumulus..	2-4	N. W.	.....	.....	.....	....	Fair.
	7 0 p. m.	23.94	67	55	23.85	55	54	93	N. W.	4	.08	....	Light fog	....	Cumulus..	3-4	N. W.	.....	.....	.....	....	Cloudy
	8 0 p. m.	23.95	66	53	23.83	53	52.5	97	N. W.	6	.18	....	Fog	....	Hidden	....	....	.....	.....	.....	....	Foggy
	9 0 p. m.	23.95	66	51	23.86	53	52	93	N. W.	4	.08	....	Light fog	....	Cumulus..	3-4	N. W.	.....	.....	.....	....	Fair.
	10 0 p. m.	23.96	68	51	23.87	51	50	93	W.	4	.08	....	Light fog	....	0	0	0	.....	.....	.....	....	Fair.
	10 39 p. m.	23.95	66	52	23.86	52	50	86	W.	6	.18	....	0	0	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	12 0 p. m.	23.94	68	51	23.85	51	50	93	W.	8	.32	....	0	0	0	0	0	.....	.....	.....	....	Clear.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.65	78	74	27.51	74	67	68	0	0	0	....	0	0	Cumulus..	2-4	W.	.....	.....	.....	....	Fair.
	2 0 p. m.	27.64	80	75	27.49	75	68	68	N.	1	.01	....	0	0	Cumulus..	3-4	W.	.....	.....	.....	....	Fair.
	3 0 p. m.	27.62	80	75	27.47	75	67	64	0	0	0	....	Hazy	....	Cumulus..	3-4	W.	.....	.....	.....	....	Fair.
	4 14 p. m.	27.60	78	75	27.46	75	68	88	0	0	0	....	Hazy	....	Cumulus..	2-4	W.	.....	.....	.....	....	Fair.
	5 0 p. m.	27.61	78	72	27.47	72	68	80	0	0	0	....	Hazy	....	Cumulus..	1-4	W.	.....	.....	.....	....	Fair.
	6 0 p. m.	27.61	77	69	27.47	69	67	90	0	0	0	....	Hazy	....	Cumulus..	1-4	W.	.....	.....	.....	....	Fair.
	7 0 p. m.	27.62	74	65	27.49	65	64	94	0	0	0	....	Hazy	....	Cumulus..	1-4	0	.....	.....	.....	....	Fair.
	8 0 p. m	27.62	72	63	27.49	63	62	94	0	0	0	....	0	0	Cumulus..	1-4	W.	.....	.....	.....	....	Fair.
	9 0 p. m.	27.63	72	60	27.50	60	59	94	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	10 0 p. m.	27.62	70	59	27.50	59	58	94	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	10 39 p. m.	27.61	69	57	27.49	58	57	94	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	12 0 p. m.	27.61	67	56	27.49	56	55	93	0	0	0	....	Hazy	....	Hazy	....	....	.....	.....	.....	....	Clear.
Knoxville, Tenn.	2 0 p. m.	29.35	81	83	29.202	83	73	60	S.	8	.32	....	0	0	Cumulus..	2-4	S. W.	.....	.....	.....	....	Fair.
	4 7 p. m.	29.32	83	86	29.168	85	71	46	S. W.	4	.08	....	0	0	Cumulus..	2-4	W.	.....	.....	.....	....	Fair.
	9 0 p. m.	29.31	79	75	29.168	74	71	85	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.
	10 32 p. m.	29.31	79	72	29.168	71	69	90	0	0	0	....	0	0	0	0	0	.....	.....	.....	....	Clear.

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Meteorological record for August 31, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.93	67	52	23.84	52	51	93	W.	10	.50	....	Light fog	....	0	0	0	.....	.....	....	..	Fair.
	2 0 a. m.	23.92	66	52	23.83	52	51	93	S.W.	12	.72	....	Light fog	....	0	0	0	.....	.....	....	....	Fair.
	3 0 a. m.	23.90	65	52	23.81	52	54	93	S.W.	12	.72	....	0	0	Cirrus	1-4	0	.....	.....	....	....	Fair.
	4 0 a. m.	23.88	62	51	23.80	51	50	93	W.	14	.98	....	Light fog	....	Cirrus	1-4	0	.....	.....	....	....	Fair.
	5 0 a. m.	23.88	62	51	23.80	51	50	93	W.	14	.98	....	Light fog	....	Cirrus	1-4	0	.....	.....	....	....	Fair.
	6 0 a. m.	23.88	60	52	23.80	52	51	93	W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	23.89	65	53	23.80	53	53	100	S.W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	....	..	Foggy.
	8 0 a. m.	23.88	62	54	23.80	54	53	93	W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 a. m.	23.89	60	57	23.81	57	55	87	W.	12	.72	....	Light fog	....	0	0	0	.....	.....	....	....	Fair.
	10 0 a. m.	23.91	65	58	23.82	58	55	82	W.	12	.72	....	Hazy	....	Cumulus	3-4	W.	.....	.....	....	....	Cloudy.
	11 0 a. m.	23.91	67	60	23.82	60	56	77	N. W.	8	.32	....	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
	12 0 m ..	23.91	67	60	23.82	60	57	82	N. W.	6	.18	200	Hazy	....	Cumulus	3-4	N. W.	.....	.....	....	....	Cloudy.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.60	65	56	27.49	56	55	93	0	0	0	....	Hazy	....	Hazy	...	.....	.....	.....	....	....	Clear.
	2 0 p. m.	27.59	65	56	27.48	56	55	93	0	0	0	....	Stratus	4-4	Hidden	...	.....	.....	.....	....	....	Cloudy.
	3 0 p. m.	27.57	64	56	27.47	56	55	93	0	0	0	....	Stratus	4-4	Hidden	...	.....	.....	.....	....	....	Cloudy.
	4 0 a. m.	27.55	63	56	27.44	56	55	93	E.	1	.01	....	Stratus	4-4	Hidden	...	.....	.....	.....	....	....	Cloudy.
	5 0 a. m.	27.55	63	58	27.44	58	57	94	0	0	0	....	Fog	....	Hidden	...	.....	.....	.....	....	....	Foggy.
	6 0 a. m.	27.56	63	58	27.45	58	57	94	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	27.57	63	59	27.46	59	58	94	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 a. m.	27.56	64	65	27.45	65	62	84	0	0	0	....	Hazy	....	Cumulus	1-4	W.	.....	.....	....	....	Fair.
	9 0 a. m.	27.56	68	75	27.44	75	68	68	0	0	0	....	Hazy	...	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	10 0 a. m.	27.58	72	78	27.45	78	68	57	N. E.	1	.01	....	0	0	Cumulus	2-4	W.	.....	.....	....	....	Fair.
	11 0 a. m.	27.58	75	78	27.44	78	68	57	N. E.	1	.01	....	0	0	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
	12 0 m ..	27.57	77	79	27.43	79	68	54	N. E.	1	.01	6	0	0	Cumulus	2-4	N. W.	.....	.....	....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.30	72	68	29.176	67	66	94	W.	1	.01	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 7 a. m.	29.30	72	68	29.176	67	66	94	W.	1	.01	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	11 32 a. m.	29.27	81	83	29.123	82	72	59	S.W.	6	.18	....	0	0	Cumulus	2-4	S.W.	.....	.....	....	....	Fair.

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Meteorological record for August 31, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.89	70	64	23.79	64	53	68	N. W.	4	.02	....	Hazy	...	Cumulus	3-4	N. W.	.....	.....	...	...	Cloudy.
	2 0 p. m.	23.87	70	63	23.78	63	54	72	N. W.	6	.13	....	Hazy	...	Cumulus	3-4	N. W.	.....	.....	..	...	Cloudy.
	3 0 p. m.	23.85	72	64	23.79	64	58	68	N. W.	3	.04	....	Hazy	...	Cumulus	3-4	N. W.	.....	.....	...	...	Cloudy.
	4 14 p. m.	23.89	74	65	23.79	65	60	73	N. W.	4	.07	....	Hazy	...	Cumulus	2-4	N. W.	.....	.....	...	...	Fair.
	5 0 p. m.	23.90	76	64	23.79	64	59	72	N. W.	4	.08	....	Hazy	...	Cumulus	3-4	N. W.	.....	.....	...	...	Cloudy.
	6 0 p. m.	23.85	72	61	23.78	61	58	83	N. W.	4	.08	....	Hazy	...	Cumulus	2-4	0	.....	.....	...	...	Fair.
	7 0 p. m.	23.87	65	57	23.79	57	53	75	N. W.	4	.04	....	Hazy	...	Cir. & cu.	1-4	0	.....	.....	...	...	Fair.
	8 0 p. m.	23.88	66	55	23.79	55	50	68	S. W.	8	.32	....	Hazy	...	0	0	0	.....	.....	...	...	Fair.
	9 0 p. m.	23.85	64	55	23.79	55	53	87	S. W.	10	.50	....	0	0	Cumulus	1-4	0	.....	.....	...	...	Fair.
	10 0 p. m.	23.87	65	55	23.78	55	52	81	S. W.	8	.32	....	0	0	Cumulus	1-4	0	.....	.....	...	...	Fair.
	10 30 p. m.	23.88	68	55	23.79	55	53	87	S. W.	10	.50	....	0	0	Cumulus	1-4	0	.....	.....	..	...	Fair.
	12 0 p. m.	23.89	70	55	23.79	55	53	87	W.	12	.72	....	0	0	Cirrus ...	1-4	0	.....	.....	...	...	Fair.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.57	80	80	27.42	80	63	51	N. E.	1	.01	..	0	0	Cumulus	2-4	W.	.....	.....	...	...	Fair.
	2 0 p. m.	27.54	82	81	27.39	81	70	55	N. E.	1	.01	....	0	0	Cumulus	2-4	W.	.....	.....	...	...	Fair.
	3 0 p. m.	27.53	85	81	27.37	81	70	55	N. E.	1	.01	....	0	0	Cumulus	2-4	W.	.....	.....	...	...	Fair.
	4 14 p. m.	27.53	84	77	27.37	77	70	69	0	0	0	....	0	0	Cumulus	2-4	W.	.....	.....	...	...	Fair.
	5 0 p. m.	27.53	81	75	27.37	75	71	81	S. E.	1	.01	....	0	0	Cumulus	1-4	W.	.....	.....	...	...	Fair.
	6 0 p. m.	27.53	80	71	27.37	71	69	85	0	0	0	....	0	0	0	0	.....	.....	.....	...	...	Clear.
	7 0 p. m.	27.53	77	65	27.38	66	61	80	0	0	0	....	Hazy	...	Hazy	...	.....	.....	.....	...	...	Clear.
	8 0 p. m.	27.53	74	64	27.39	63	62	91	0	0	0	....	0	0	0	0	0	.....	.....	...	...	Clear.
	9 0 p. m.	27.53	72	61	27.39	61	60	94	0	0	0	....	0	0	0	0	0	.....	.....	...	...	Clear.
	10 0 p. m.	27.52	71	59	27.39	59	58	91	0	0	0	....	0	0	0	0	0	.....	.....	...	...	Clear.
	10 30 p. m.	27.53	70	58	27.40	58	57	94	0	0	0	....	0	0	0	0	0	.....	.....	...	...	Clear.
	12 0 p. m.	27.51	67	56	27.39	56	55	94	0	0	0	....	0	0	0	0	0	.....	.....	...	...	Clear.
Knoxville, Tenn.	2 0 p. m.	29.24	82	81	29.082	85	71	46	N. W.	6	.18	....	0	0	Cumulus	1-4	S. W	.....	.....	...	...	Fair.
	4 7 p. m.	29.22	83	80	29.059	80	73	42	W.	4	.03	....	0	0	0	0	0	.....	.....	...	...	Clear.
	9 0 p. m.	29.24	80	76	29.057	75	72	85	W.	3	.04	....	9	0	0	0	0	.....	.....	...	...	Clear.
	10 32 p. m.	29.20	81	74	29.054	73	71	90	0	0	0	....	0	0	0	0	0	.....	.....	...	...	Clear.

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Meteorological record for September 1, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.87	67	55	23.78	55	50	68	N. W.	8	.32	...	0	0	Cirrus ..	1-4	0	.....	....	...	...	Fair.
	2 0 a. m.	23.87	66	54	23.78	54	50	74	N. W.	8	.32	...	0	0	0	0	0	.....	.....	...	...	Clear.
	3 0 a. m.	23.86	64	53	23.78	53	49	73	N. W.	10	.50	...	Hazy	....	Cirrus...	1-4	0	.....	.....	..	...	Fair.
	4 0 a. m.	23.86	64	54	23.78	54	50	74	N. W.	10	.50	...	Hazy	....	Cirrus...	1-4	0	.....	.....	...	...	Fair.
	5 0 a. m.	23.85	62	55	23.77	55	51	74	N. W.	12	.72	...	Hazy	....	Cirrus...	1-4	0	.....	.....	...	...	Fair.
	6 0 a. m.	23.85	61	56	23.77	56	50	63	N. W.	12	.72	...	Hazy	....	Cirrus...	1-4	0	.....	.....	...	...	Fair.
	7 14 a. m.	23.86	63	57	23.78	57	51	63	N. W.	12	.72	...	Hazy	....	Cirrus ..	1-4	0	.....	.....	...	...	Fair.
	8 0 a. m.	23.86	64	58	23.78	58	53	70	N. W.	12	.72	...	Huzy	....	Cir. & cu.	1-4	N. W.	.....	.....	...	...	Fair.
	9 0 a. m.	23.87	64	60	23.79	60	56	77	N. W.	10	.50	...	Hazy	....	Cir. & cu.	1-4	0	.....	.....	...	...	Fair.
	10 0 a. m.	23.87	65	63	23.78	63	58	72	N. W.	8	.32	...	Hazy	....	Cirrus...	1-4	0	.....	.....	...	...	Fair.
	11 0 a. m	23.86	67	64	23.77	64	58	68	N. W.	8	.32	..	Huzy	....	Cir. & cu.	2-4	W.	.....	.....	...	...	Fair.
	12 0 m...	23.86	68	65	23.77	65	59	68	N. W.	4	.08	185	Hazy	....	Cir. & cu.	2-4	0	.....	.....	...	...	Fair.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.50	65	55	27.39	55	53	87	0	0	0	....	Hazy	..	0	0	0	.....	.....	...	...	Clear.
	2 0 a. m.	27.48	64	55	27.37	55	54	93	0	0	0	....	Stratus ...	2-4	0	0	0	.....	.....	...	...	Fair.
	3 0 a. m	27.47	63	50	27.36	56	54	87	0	0	0	....	Stratus ...	4-4	Hidden..	....	.....	.....	.....	...	...	Cloudy.
	4 0 a. m.	27.47	63	55	27.36	55	54	93	0	0	0	....	Fog	....	Hidden..	....	.....	.....	.....	...	...	Foggy.
	5 0 a. m.	27.47	62	54	27.37	54	54	100	0	0	0	....	Fog	....	Hidden..	....	.....	.....	.....	...	...	Foggy.
	6 0 a. m.	27.48	62	54	27.38	54	54	100	0	0	0	....	Fog	....	Hidden..	....	.....	.....	.....	...	...	Foggy.
	7 14 a. m.	27.48	61	56	27.38	56	55	93	0	0	0	....	Fog	....	Hidden..	....	.....	.....	.....	...	...	Foggy.
	8 0 a. m.	27.49	62	62	27.39	62	60	89	0	0	0	....	Huzy	..	Cirrus...	1-4	0	.....	.....	...	..	Clear.
	9 0 a. m.	27.49	65	75	27.38	75	69	72	0	0	0	....	Hazy	....	0	0	0	.....	.....	...	..	Clear.
	10 0 a. m.	27.49	71	77	27.36	77	70	69	0	0	0	....	Hazy	....	Cirrus ..	1-4	0	.....	.....	...	..	Fair.
	11 0 a. m.	27.48	75	81	27.34	81	70	56	S.	1	.01	...	0	0	Cumulus	1-4	S.	.....	.....	...	..	Fair.
	12 0 m...	27.48	80	81	27.33	81	71	59	N. W.	1	.01	8	0	0	Cirrus ..	1-4	0	.....	.....	...	..	Fair.
Knoxville, Tenn	7 0 a. m.	29.21	74	68	29.081	67	66	94	W.	1	.01	...	Fog	....	Hidden..	....	.....	.....	.....	...	...	Foggy.
	7 7 a. m.	29.21	74	68	29.081	67	66	94	0	0	0	....	Fog	..	Hidden..	....	.....	.....	.....	...	...	Foggy.
	11 32 a. m.	29.19	83	85	29.089	84	73	59	S.	4	.08	58	0	0	0	0	0	.....	.....	...	..	Clear.

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Meteorological record for September 1, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 p. m.	23.86	70	67	23.76	67	58	55	N. W.	6	.18	....	Hazy.....	....	Cir.& cu.	2-4	0	.....	.....	.....	.....	Fair.
	2 0 p. m.	23.85	75	70	23.74	70	62	61	N. W.	2	.02	....	Hazy.....	....	Cumulus	2-4	N. W.	.....	.....	.....	.....	Fair.
	3 0 p. m.	23.84	75	65	23.73	65	60	73	N. W.	2	.02	....	Hazy.....	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	4 14 p. m.	23.84	75	65	23.73	65	59	69	N. W.	1	.01	....	Hazy.....	....	Cumulus	3-4	N. W.	.....	.....	.....	.....	Cloudy.
	5 0 p. m.	23.84	73	65	23.74	65	60	73	N. W.	3	.04	....	Hazy.....	....	Cumulus	2-4	N. W	.....	.....	.....	.....	Fair.
	6 0 p. m.	23.82	70	62	23.72	62	59	83	N. W.	8	.32	....	Hazy.....	....	Cumulus	2-4	N. W	.....	.....	.....	.....	Fair.
	7 0 p. m	23.84	66	60	23.75	60	58	88	W.	4	.08	....	Hazy.....	....	Cumulus	3-4	0	.....	.....	.....	.....	Cloudy.
	8 0 p. m.	23.86	73	58	23.76	58	56	88	W.	4	.08	....	Hazy.....	....	Cir.& cu.	2-4	0	.....	.....	.....	.....	Cloudy.
	9 0 p. m.	23.88	72	57	23.78	57	55	87	W.	8	.32	....	Hazy.....	....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	10 0 p. m.	23.86	72	58	23.76	58	50	53	N. W.	8	.32	....	Hazy.....	....	Cir.-cu..	3-4	0	.....	.....	.....	.....	Fair.
	10 39 p. m	23.87	72	60	23.77	60	52	55	N. W.	4	.08	....	Hazy.....	....	Cir.-cu..	2-4	N. W.	.....	.....	.....	.....	Fair.
	12 0 p. m.	23.86	69	59	23.77	59	49	43	W.	4	.08	....	0	0	Cir.& cu.	2-4	0	.....	.....	.....	.....	Fair.
Base of Mount Mitchell, N. C..	1 0 p. m	27.48	84	83	27.32	83	72	55	N. W.	1	.01	....	0	0	Cumulus	1-4	W.	.....	.....	.....	.....	Fair.
	2 0 p. m.	27.47	85	82	27.31	82	71	56	0	0	0	...	0	0	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	3 0 p. m.	27.46	86	77	27.30	77	72	77	0	0	0	....	0	0	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	4 14 p. m.	27.45	84	80	27.29	80	73	70	0	0	0	....	0	0	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	5 0 p. m.	27.45	84	78	27.29	78	74	72	0	0	0	....	Hazy	..	Hazy ...	....	0	.....	.....	.....	..	Clear.
	6 0 p. m.	27.44	82	73	27.29	73	70	85	0	0	0	...	0	0	Hazy ...	.....	.....	.....	.....	.....	.....	Clear.
	7 0 p. m.	27.46	79	69	27.31	69	67	90	0	0	0	....	0	0	Cirrus ..	2-4	0	.....	.....	.....	.....	Fair.
	8 0 p. m	27.48	77	66	27.34	68	66	89	0	0	0	....	0	0	Cir.-cu..	2-4	W.	.....	.....	.....	.....	Fair.
	9 0 p. m.	27.49	75	65	27.35	65	63	89	0	0	0	....	0	0	Cir.-cu..	2-4	W.	.....	.....	.....	.....	Fair.
	10 0 p. m.	27.48	73	63	27.35	63	62	94	0	0	0	....	Stratus ...	2-4	Cumulus	1-4	W.	.....	.....	.....	.....	Cloudy.
	10 39 p. m.	27.49	71	64	27.36	64	62	89	0	0	0	....	Stratus....	1-4	Cir.-cu..	3-4	W.	.....	.....	.....	.....	Cloudy.
	12 0 p. m.	27.48	70	63	27.36	62	60	88	0	0	0	....	Hazy.....	...	0	0	0	.....	.....	.....	.....	Clear.
Knoxville, Tenn .	2 0 p. m	29.19	86	73	29.001	72	70	87	S. W.	4	.08	....	0	0	Cirrus ..	4-4	0	.....	.....	.....	.....	Cloudy.
	4 7 p. m.	29.12	86	87	28.931	86	73	51	N. W.	12	.72	....	0	0	0	0	0	.....	.....	.....	.....	Clear.
	9 0 p. m.	29.13	82	76	28.982	77	73	81	S. W.	2	.02	....	0	0	Cumulus	1-4	0	.....	.....	.....	.....	Fair.
	10 32 p. m.	29.13	78	75	28.992	74	71	85	S. W.	3	.04	....	0	0	Cirrus ..	2-4	0	.....	.....	.....	.....	Fair.

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Meteorological record for September 2, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction (moving from—)	RAIN OR SNOW. Commenced.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m	23.85	68	78	23.76	58	54	76	N. W.	4	.08	...	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	2 0 a. m.	23.84	66	57	23.75	57	55	87	W.	8	.32	...	Light fog	.....	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	3 0 a. m.	23.84	65	56	23.74	56	55	94	W.	10	.50	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	4 0 a. m.	23.82	65	56	23.73	56	55	94	W.	8	.32	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	5 0 a. m.	23.81	65	56	23.72	56	55.5	97	W	10	.50	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	6 0 a. m.	23.82	64	55	23.74	55	55	100	N. W.	10	.50	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	7 14 a. m.	23.84	64	57	23.76	57	55	87	N. W.	12	.72	...	Hazy	.....	Cirrus ..	3-4	0	.....	.....	.....	.....	Cloudy.
	8 0 a. m.	23.85	65	58	23.76	58	56	88	N. W.	8	.32	...	Hazy	.....	Cirrus ..	2-4	0	.....	.....	.....	.....	Cloudy.
	9 0 a. m	23.86	64	59	23.78	59	55	76	N. W.	6	.18	...	Hazy	.....	Cir. & cu	2-4	0	.....	.....	.....	.....	Fair.
	10 0 a. m.	23.86	65	61	23.77	61	56	71	W.	4	.08	...	Hazy	.....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	11 0 a. m.	23.87	66	63	23.78	63	58	62	W.	3	.04	...	Hazy	.....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	12 0 m ..	23.86	68	64	23.77	64	58	68	S. W.	4	.08	133	Hazy	.....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
Base of Mount Mitchell, N. C..	1 0 a. m.	27.44	69	63	27.33	60	59	94	0	0	0	...	Hazy	.....	0	0	0	.....	.....	.....	.....	Clear.
	2 0 a. m.	27.44	68	58	27.32	58	57	94	0	0	0	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	3 0 a. m.	27.43	66	56	27.32	56	55	94	0	0	0	...	Fog	.....	0	0	0	.....	.....	.....	.....	Fair.
	4 0 a. m	27.43	65	57	27.32	57	56	94	0	0	0	...	Hazy	.....	Hazy	.....	.....	.....	.....	.....	.....	Clear.
	5 0 a. m.	27.44	65	58	27.33	58	57	94	0	0	0	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	6 0 a. m.	27.45	64	58	27.34	58	57	94	0	0	0	...	Fog	.....	Hidden	.....	.....	.....	.....	.....	.....	Foggy.
	7 14 a. m	27.46	64	61	27.35	61	60	94	0	0	0	...	Hazy	.....	Cirrus ..	3-4	0	.....	.....	.....	.....	Fair.
	8 0 a. m	27.46	65	68	27.35	68	65	84	0	0	0	...	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	9 0 a. m.	27.47	67	75	27.35	75	69	72	0	0	0	...	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Fair.
	10 0 a. m.	27.48	74	81	27.35	81	72	63	0	0	0	...	0	0	Cirrus ..	1-4	0	.....	.....	.....	.....	Clear.
	11 0 a. m.	27.49	78	81	27.35	81	72	63	0	0	0	...	0	0	Cirrus ..	3-4	0	.....	.....	.....	.....	Fair.
	12 0 m ..	27.50	80	83	27.35	83	73	60	E.	4	.08	7	0	0	Cumulus	3-4	W.	.....	.....	.....	.....	Fair.
Knoxville, Tenn	7 0 a. m.	29.19	76	73	29.057	72	70	87	S. W.	4	.08	...	0	0	Cirrus ..	4-4	.....	.....	.....	.....	.....	Cloudy.
	7 7 a. m.	29.19	76	73	29.057	72	70	87	S. W.	4	.08	...	0	0	Cirrus ..	4-4	.....	.....	.....	.....	.....	Cloudy.
	11 32 a. m.	29.20	84	85	29.046	84	74	60	W.	4	.08	112	0	0	Cumulus	4-4	.....	.....	.....	.....	.....	Cloudy.

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Meteorological record for September 2, 1873—Continued.

(Hourly observations.)

Place of observations.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction. (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.83	64	70	23.77	70	61	57	S. W.	6	.18	....	Hazy	....	Cumulus	3-4	S. W.	.....	.....	.....	.....	Cloudy.
	2 0 p. m.	23.85	62	68	23.77	68	61	65	S. W.	8	.32	....	Hazy	....	Cumulus	3-4	S. W.	.....	.....	.....	.....	Cloudy.
	3 0 p. m.	23.86	62	68	23.78	68	61	65	W.	12	.72	....	Hazy	....	Cumulus	3-4	W.	.....	.....	.....	.....	Cloudy.
	4 14 p. m.	23.85	65	62	23.76	62	60	88	N. W.	8	.32	....	Nimbus	4 4	Hidden	....	.....	3.55 p. m.	.....	.08	....	Heavy rain.
	5 0 p. m.	23.85	65	60	23.76	60	59	94	N. W.	6	.18	....	Nimbus	4 4	Hidden	....	.....	.....	.....	.16	....	Heavy rain.
	6 0 p. m.	23.84	65	60	23.76	60	59	94	W	4	.08	....	Nimbus	4 4	Hidden	....	.....	.....	.....	.21	....	Heavy rain.
	7 0 p. m.	23.85	63	59	23.77	59	57	88	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	6.30 p. m.	.07	....	Foggy.
	8 0 p. m.	23.86	64	58	23.78	58	57	94	N. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	9 0 p. m.	23.87	64	57	23.79	57	56	94	N. W.	10	.50	....	Fog	....	0	0	0	.....	.....	.....	....	Foggy.
	10 0 p. m.	23.88	65	56	23.79	56	54	87	N. W.	6	.18	....	Light fog	....	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	10 39 p. m.	23.87	65	56	23.78	56	54	87	N. W.	4	.08	....	0	0	Cirrus	1-4	0	.....	.....	.....	....	Fair.
	12 0 p. m.	23.85	67	56	23.76	56	54	87	N. W.	4	.08	....	0	0	Cirrus	1-4	0	.....	.....	.....	....	Fair.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.49	83	83	27.33	83	71	53	N.	4	.08	....	0	0	Cumulus	3-4	N.	.....	.....	.....	....	Fair.
	2 0 p. m.	27.49	83	83	27.33	83	72	56	0	0	0	....	0	0	Cumulus	3-4	N.	.....	.....	.....	....	Fair.
	3 0 p. m.	27.47	83	75	27.31	75	68	68	0	0	0	....	0	0	Cumulus	4-4	0	.....	.....	.....	....	Cloudy.
	4 14 p. m.	27.46	80	78	27.31	78	71	69	W.	1	.01	....	0	0	Cumulus	2-4	0	.....	.....	.....	....	Fair.
	5 0 p. m.	27.46	80	78	27.31	78	72	73	0	0	0	....	0	0	Cumulus	2-4	W.	.....	.....	.....	....	Fair.
	6 0 p. m.	27.47	80	72	27.32	72	68	72	S. W.	1	.01	....	Stratus	2 4	Cumulus	2-4	S. W.	.....	.....	.....	....	Cloudy.
	7 0 p. m.	27.49	77	69	27.35	69	67	90	0	0	0	....	Stratus	3-4	Cumulus	1-4	0	.....	.....	.....	....	Threatening.
	8 0 p. m.	27.53	76	67	27.39	67	66	95	W.	1	.01	....	Nimbus	4 4	Hidden	....	.....	7.45 p. m.	.....	.22	....	Heavy rain.
	9 0 p. m.	27.51	75	65	27.37	65	63	89	0	0	0	....	Stratus	2-4	0	0	0	.....	8.30 p. m.	.58	....	Fair.
	10 0 p. m.	27.50	74	63	27.37	63	62	89	0	0	0	....	Stratus	2-4	0	0	0	.....	.....	.....	....	Fair.
	10 39 p. m.	27.50	73	61	27.37	61	61	100	0	0	0	....	Stratus	2-4	0	0	0	.....	.....	.....	....	Fair.
	12 0 p. m.	27.49	70	61	27.37	61	60	94	0	0	0	....	Stratus	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
Knoxville, Tenn.	2 0 p. m.	29.16	85	88	29.004	87	72	45	N.	8	.32	....	0	0	Cumulus	3-4	E.	.....	.....	.....	....	Cloudy.
	4 7 p. m.	29.15	86	87	28.991	86	73	51	N. W.	12	.72	....	Stratus	4 4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	9 0 p. m.	29.17	81	76	29.004	75	70	74	S. W.	6	.18	....	0	0	Cirrus	4-4	0	.....	.....	.....	....	Cloudy.
	10 32 p. m.	29.17	81	75	29.004	74	70	78	0	0	0	....	0	0	Cirrus	3-4	0	.....	.....	.....	....	Cloudy.

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Meteorological record for September 3, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 a. m.	23.86	66	55	23.77	55	53	87	S. W.	2	.02	....	0	0	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	2 0 a. m.	23.86	61	55	23.78	55	54	93	S. W.	4	.08	....	Hazy	....	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	3 0 a. m.	23.85	60	54	23.77	54	53	93	W.	2	.02	....	Hazy	....	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	4 0 a. m.	23.84	65	54	23.75	54	53	93	S. W.	6	.18	....	Light fog	....	Cumulus	2-4	0	.....	.....	....	....	Cloudy.
	5 0 a. m.	23.84	66	55	23.75	55	53	87	S. W.	8	.32	....	Light fog	....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	6 0 a. m.	23.86	62	57	23.78	57	54	81	S.	6	.18	....	Hazy	....	Cumulus	2-4	0	.....	.....	....	....	Fair.
	7 14 a. m.	23.88	64	62	23.80	62	58	77	S. E	6	.18	....	Hazy	....	Cumulus	2-4	S. E.	.....	.....	....	....	Fair.
	8 0 a. m.	23.89	66	64	23.80	64	60	78	S. E.	5	.12	....	Hazy	....	Cumulus	2-4	S. E.	.....	.....	....	....	Fair.
	9 0 a. m.	23.90	72	68	23.80	68	62	70	S. E.	4	.08	....	Hazy	....	Cumulus	3-4	0	.....	.....	....	....	Cloudy.
	10 0 a. m.	23.91	72	63	23.81	63	60	83	S. E.	4	.04	....	Fog	....	Cumulus	1-4	0	.....	.....	....	....	Foggy.
	11 0 a. m.	23.92	72	68	23.82	68	62	70	S. E.	4	.08	....	Fog	....	Cumulus	3-4	E.	.....	.....	....	....	Foggy.
	12 0 m ..	23.90	65	65	23.81	65	62	84	S. E.	8	.32	136	Fog	....	Cumulus	4-4	S. E.	.....	.....	....	....	Cloudy.
Base of Mount Mitchell, N. C.	1 0 a. m.	27.49	70	60	27.37	60	59	91	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	2 0 a. m.	27.49	68	60	27.37	60	59	91	0	0	0	....	Stratus ...	2-4	0	0	0	.....	.....	....	....	Fair.
	3 0 a. m.	27.48	67	58	27.36	58	57	94	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear.
	4 0 a. m.	27.49	66	58	27.38	58	57	94	0	0	0	....	Stratus ...	1-4	0	0	0	.....	.....	....	....	Fair.
	5 0 a. m.	27.50	65	56	27.39	56	55	93	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear.
	6 0 a. m.	27.51	64	56	27.40	56	55	93	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	7 14 a. m.	27.52	68	58	27.40	58	57	94	0	0	0	....	Fog	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 a. m.	27.51	64	64	27.40	64	62	89	0	0	0	....	0	0	Cirrus ...	1-4	0	.....	.....	....	....	Clear.
	9 0 a. m.	27.52	67	74	27.40	74	70	81	0	0	0	....	0	0	Cumulus	1-4	N. W.	.....	.....	....	....	Fair.
	10 0 a. m.	27.53	72	77	27.40	77	70	69	S. W.	1	.01	....	0	0	Cumulus	1-4	S. W.	.....	.....	....	....	Fair.
	11 0 a. m.	27.54	75	78	27.40	78	71	69	N. E.	1	.01	....	0	0	Cumulus	1-4	0	.....	.....	....	....	Fair.
	12 0 m ..	27.53	78	80	27.39	80	77	66	S.	4	.08	10	0	0	Cumulus	3-4	S.	.....	.....	....	....	Fair.
Knoxville, Tenn.	7 0 a. m.	29.22	74	71	29.091	70	67	84	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear.
	7 7 a. m.	29.22	74	71	29.091	70	67	84	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear.
	11 32 a. m.	29.22	82	84	29.071	83	73	56	S.	8	.32	107	0	0	Cumulus	1-4	S. W.	.....	.....	....	....	Fair.

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Meteorological record for September 3, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	HYGROM. Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.89	73	65	23.79	65	62	84	S. E.	6	.18	....	Fog	....	Cumulus	4-4	S. E.	.....	.....	.....	....	Cloudy.
	2 0 p. m.	23.88	73	63	23.78	63	60	83	E.	4	.08	....	Nimbus...	4-4	Hidden	....	.....	2.00 p. m.	.....	.....	....	Light rain.
	3 0 p. m.	23.86	71	64	23.76	64	61	83	S. E.	8	.32	....	Fog	....	Hidden	....	.....	.....	2.35 p. m.	.03	....	Foggy.
	4 14 p. m.	23.83	70	61	23.73	61	60	94	S. E.	10	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	5 0 p. m.	23.82	67	60	23.73	60	59	94	S. E.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	6 0 p. m.	23.84	66	59	23.75	59	58	94	S. W.	8	.32	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	7 0 p. m.	23.81	64	58	23.73	58	57	94	S. W.	16	1.28	....	Fog	....	Cumulus	2-4	S.	.....	.....	.....	....	Cloudy.
	8 0 p. m.	23.81	65	57	23.72	57	56	94	S. W.	16	1.28	....	Fog	....	Cir.& cu.	2-4	S. W.	.....	.....	.....	....	Cloudy.
	9 0 p. m.	23.82	65	57	23.73	57	56	94	S. W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	....	Foggy.
	10 0 p. m.	23.82	64	56	23.74	56	55	94	S. W.	12	.72	....	Light fog	....	Cumulus	4-4	S. W.	.....	.....	.....	....	Cloudy.
	10 39 p. m.	23.81	63	56	23.73	56	55	94	S. W.	12	.72	....	Light fog	....	Cumulus	4-4	S. W.	.....	.....	.....	....	Cloudy.
	12 0 p. m.	23.80	62	55	23.72	55	54	93	S. W.	16	1.28	....	Light fog	....	Cumulus	4-4	S. W.	.....	.....	.....	....	Cloudy.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.52	82	80	27.37	80	71	62	S. W.	4	.08	....	0	0	Cumulus	2-4	S. W.	.....	.....	.....	....	Fair.
	2 0 p. m.	27.51	83	80	27.35	80	72	66	S. W.	4	.08	....	0	0	Cumulus	2-4	S. W.	.....	.....	.....	....	Fair.
	3 0 p. m.	27.48	84	80	27.32	80	72	66	S. W.	1	.01	....	0	0	Cumulus	2-4	S. W.	.....	.....	.....	....	Fair.
	4 14 p. m.	27.47	83	77	27.31	77	70	69	S.	4	.08	....	Stratus ...	2-4	Cumulus	2-4	S.	.....	.....	.....	....	Cloudy.
	5 0 p. m.	27.47	82	73	27.32	73	70	85	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	6 0 p. m.	27.47	80	70	27.32	70	69	95	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	7 0 p. m.	27.47	78	69	27.33	69	68	95	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	8 0 p. m.	27.47	76	67	27.33	67	66	95	0	0	0	....	Stratus ...	2-4	0	0	0	.....	.....	.....	....	Fair.
	9 0 p. m.	27.48	75	66	27.34	66	65	94	0	0	0	....	Stratus ...	2-4	Cirrus ..	1-4	0	.....	.....	.....	....	Fair.
	10 0 p. m.	27.47	74	65	27.34	65	64	94	0	0	0	....	Stratus ...	3-4	0	0	0	.....	.....	.....	....	Fair.
	10 39 p. m.	27.47	73	64	27.34	64	62	89	0	0	0	....	Stratus ...	2-4	Cumulus	2-4	S.	.....	.....	.....	....	Cloudy.
	12 0 p. m.	27.45	71	62	27.32	62	61	94	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
Knoxville, Tenn.	2 0 p. m.	29.17	86	88	29.011	87	75	55	S.	8	.32	....	0	0	Cumulus	2-4	S. W.	.....	.....	.....	....	Cloudy.
	4 7 p. m.	29.14	86	89	28.981	88	74	48	S. W.	12	.72	....	0	0	Cir.& cu.	4-4	W.	.....	.....	.....	....	Cloudy.
	9 0 p. m.	29.14	77	71	29.004	70	69	92	0	0	0	....	Stratus ...	4-4	Hidden	....	.....	6.20 p. m.	7.15 p. m.	1.26	....	Cloudy.
	10 32 p. m.	29.14	77	70	29.004	69	68	95	E.	2	.02	....	0	0	Cirrus ..	4-4	0	.....	.....	.....	....	Clearing.

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Meteorological record for September 4, 1873.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bath.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C..	1 0 a. m.	23.78	62	55	23.70	55	55	100	S.W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	.....	...	Foggy.
	2 0 a. m.	23.77	62	54	23.69	54	54	100	S.W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	...	Foggy.
	3 0 a. m.	23.77	63	54	23.69	54	54	100	S.W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	.....	...	Foggy.
	4 0 a. m.	23.77	62	55	23.69	55	55	100	S.W.	14	.98	....	Fog	....	Hidden	....	.....	.....	.....	.....	...	Foggy.
	5 0 a. m.	23.77	62	54	23.69	54	54	100	W.	12	.72	....	Fog	....	Hidden	....	.....	.....	.....	.....	...	Foggy.
	6 0 a. m.	23.77	62	55	23.69	55	54	93	W.	16	1.28	....	Fog	....	Hidden	....	.....	.....	.....	.....	...	Foggy.
	7 14 a. m.	23.78	62	55	23.70	55	55	100	W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	.....	...	Foggy.
	8 0 a. m.	23.78	61	55	23.70	55	55	100	W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	.....	...	Foggy.
	9 0 a. m.	23.80	60	54	23.72	54	54	100	W.	22	2.42	....	Fog	....	Hidden	....	.....	.....	.....	.....	...	Foggy.
	10 0 a. m.	23.82	62	54	23.74	54	54	100	W.	20	2.00	....	Fog	....	Hidden	....	.....	.....	.....	.....	...	Foggy.
	11 0 a. m.	23.81	61	53	23.73	53	53	100	W.	16	1.28	....	Light fog	....	Cumulus	2-4	W.	10.15 a. m.	10.50 a. m.	.09	....	Fair.
	12 0 m ..	23.79	63	56	23.71	56	55	93	N.W.	16	1.28	348	Light fog	....	Cumulus	3-4	W.	.....	.....	.....	....	Cloudy.
Base of Mount Mitchell, N. C..	1 0 a. m	27.44	70	61	27.32	61	60	94	0	0	....		Stratus ...	2-4	Cirrus ..	2-4	0	.....	.....	.....	....	Cloudy.
	2 0 a. m.	27.45	69	61	27.33	61	60	94	0	0	0	....	Stratus ...	3-4	0	0	0	.....	.....	.....	....	Cloudy.
	3 0 a. m.	27.45	68	60	27.33	60	59	94	0	0	0	....	Stratus ..	1-4	0	0	0	.....	.....	.....	....	Fair.
	4 0 a. m.	27.44	67	60	27.32	60	59	94	0	0	0	....	Stratus ..	2-4	0	0	0	.....	.....	.....	....	Fair.
	5 0 a. m.	27.44	67	61	27.32	61	60	94	0	0	0	....	0	0	Cumulus	2-4	W.	.....	.....	.....	....	Fair.
	6 0 a. m.	27.45	67	61	27.33	61	60	94	0	0	0	....	0	0	Cir. &cu.	2-4	W.	.....	.....	.....	....	Fair.
	7 14 a. m.	27.46	67	61	27.34	61	59	88	0	0	0	....	0	0	Cir. &cu.	3-4	W.	.....	.....	.....	....	Fair.
	8 0 a. m.	27.47	68	68	27.35	68	65	84	0	0	0	....	Stratus ...	2-4	Cumulus	2-4	W.	.....	.....	.....	....	Cloudy.
	9 0 a. m.	27.49	69	68	27.37	68	66	80	0	0	0	....	Stratus ..	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	10 0 a. m.	27.48	70	70	27.36	70	67	85	0	0	0	....	Stratus ..	4-4	Hidden	....	.....	.....	.....	.....	....	Cloudy.
	11 0 a. m.	27.46	71	67	27.33	67	66	95	0	0	0	....	Stratus ..	4-4	Hidden	....	.....	10.18 a. m.	10.55 a. m.	.03	....	Cloudy.
	12 0 m ..	27.44	71	72	27.31	72	68	80	0	0	0	12	Stratus ...	2-4	Cir.& cu.	2-4	0	.....	.....	.....	....	Cloudy.
Knoxville, Tenn .	7 0 a. m.	29.17	74	70	29.041	69	68	95	S.	8	.32	....	Stratus ..	4-4	Hidden	....	.....	6.00 a. m.	.....	.....	....	Cloudy.
	7 7 a. m.	29.17	74	70	29.041	69	68	95	S.	8	.32	....	Stratus ...	4-4	Hidden	....	.....	.....	7.15 a. m.	.11	....	Cloudy.
	11 32 a. m.	29.22	82	64	29.071	83	73	59	S.	8	.32	173	0	0	Cumulus	1-4	S.W.	.....	.....	.....	....	Fair.

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Meteorological record for September 4, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	BAROMETER.	THERM.		HYGROM.		WIND.			LOWER CLOUDS.		UPPER CLOUDS.			RAIN OR SNOW.			Remarks.
			Attached.	Exposed.	Dry bulb.	Wet bulb.	Relative humidity.	Direction.	Velocity per hour.	Pressure per sq. ft.	Daily velocity.	Kind.	Amount.	Kind.	Amount.	Direction, (moving from—)	Commen'd.	Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	
Summit of Mount Mitchell, N.C.	1 0 p. m.	23.80	64	60	59	53	94	W.	16	1.28	...	Light fog	...	Cumulus	3-4	N. W.	...	...	...	...	Cloudy.
	2 0 p. m.	23.78	67	60	60	53	84	W. W.	12	.72	...	Hazy	...	Cumulus	3-4	W.	...	...	...	...	Cloudy.
	3 0 p. m.	23.78	66	58	58	57	94	N. W.	16	1.28	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	4 14 p. m.	23.77	64	58	58	57	94	N. W.	16	1.28	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	5 0 p. m.	23.77	63	58	58	56	100	N. W.	20	2.00	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	6 0 p. m.	23.77	66	57	57	57	100	W.	18	1.62	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	7 0 p. m.	23.76	66	58	58	57	100	N. W.	16	1.28	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	8 0 p. m.	23.76	66	57	57	57	100	N. W.	22	2.42	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	9 0 p. m.	23.77	63	56	56	56	100	N. W.	28	3.92	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	10 0 p. m.	23.78	62	56	56	56	100	N. W.	24	2.88	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	10 39 p. m.	23.78	63	56	56	56	100	N. W.	22	2.42	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
	12 0 p. m.	23.78	64	55	55	55	100	N. W.	16	1.28	...	Fog	...	Hidden	...	...	...	...	...	...	Foggy.
Base of Mount Mitchell, N.C.	1 0 p. m.	27.44	74	76	76	69	68	N. E.	1	.01	...	Stratus	1-4	Cir.-cu.	3-4	W.	...	...	...	...	Cloudy.
	2 0 p. m.	27.42	79	77	77	70	69	0	0	0	...	Stratus	2-4	Cumulus	2-4	W.	...	...	...	...	Cloudy.
	3 0 p. m.	27.43	78	78	78	69	61	N. E.	1	.01	...	Stratus	2-4	Cumulus	2-4	W.	...	...	...	...	Cloudy.
	4 14 p. m.	27.43	79	76	76	69	68	N. E.	1	.01	...	Stratus	1-4	Cumulus	3-4	W.	...	...	...	...	Cloudy.
	5 0 p. m.	27.43	78	75	75	68	68	N. E.	1	.01	...	Stratus	1-4	Cirrus	1-4	0	...	...	...	...	Cloudy.
	6 0 p. m.	27.44	78	74	74	68	72	S.	4	.08	...	Stratus	3-4	Cumulus	1-4	S. W.	...	...	...	...	Cloudy.
	7 0 p. m.	27.46	77	74	74	67	68	S.	1	.01	...	Stratus	3-4	Cirrus	1-4	W.	...	...	...	...	Cloudy.
	8 0 p. m.	27.46	77	73	73	67	64	S.	1	.01	...	Stratus	1-4	Cirrus	1-4	W.	...	...	...	...	Fair.
	9 0 p. m.	27.46	76	74	74	66	63	0	0	0	...	0	0	Cirrus	1-4	0	...	...	...	...	Fair.
	10 0 p. m.	27.46	74	67	67	64	84	0	0	0	...	0	0	Cirrus	1-4	0	...	...	...	...	Clear.
	10 39 p. m.	27.45	73	65	65	63	89	0	0	0	...	0	0	0	0	0	...	...	...	...	Clear.
	12 0 p. m.	27.45	72	66	66	64	89	0	0	0	...	0	0	Cir.-cu.	2-4	S. W.	...	...	...	...	Fair.
Knoxville, Tenn.	2 0 p. m.	29.12	83	84	83	74	63	S. W	16	1.28	...	0	0	Cumulus	4-4	W.	...	...	...	...	Threatening.
	4 7 p. m.	29.12	84	85	84	75	64	S. W.	8	.32	...	0	0	Cumulus	4-4	W.	3.00 p. m.	3.15 p. m.	.02	...	Cloudy.
	9 0 p. m.	29.14	79	74	73	70	85	S. W.	8	.32	...	Stratus	4-4	Hidden	...	...	...	...	...	...	Cloudy.
	10 32 p. m.	29.14	80	73	72	69	85	S. W.	6	.18	...	0	0	Cirrus	4-4	0	...	...	...	...	Cloudy.

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Meteorological record for September 5, 1873.

(Hourly observations.)

Place of observation.		Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1	0 a. m.	23.79	67	57	23.70	57	57	100	W.	16	1.28	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	2	0 a. m.	23.78	65	57	23.69	57	57	100	N. W.	18	1.62	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	3	0 a. m.	23.79	64	56	23.71	56	56	100	W.	20	2.00	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	4	0 a. m.	23.79	63	57	23.71	57	57	100	W.	22	2.42	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	5	0 a. m.	23.80	64	58	23.72	58	58	100	W.	20	2.00	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	6	0 a. m.	23.82	63	57	23.74	57	57	100	W.	16	1.28	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	7	14 a. m.	23.83	64	57	23.75	57	57	100	W.	22	2.42	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	8	0 a. m.	23.75	63	57	23.77	57	57	100	W.	20	2.00	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	9	0 a. m.	23.77	63	57	23.79	57	57	100	W.	20	2.00	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	10	0 a. m.	23.82	63	58	23.80	58	58	100	W.	16	1.28	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	11	0 a. m.	23.90	64	59	23.81	59	59	100	W.	16	1.28	....	Fog	....	Hidden	....	....	....	....	....	....	Foggy.
	12	0 m.	23.90	64	60	23.81	60	59	94	W.	16	1.28	449	Light fog	....	Cumulus	2-4	0	....	....	....	....	Cloudy.
Base of Mount Mitchell, N. C.	1	0 a. m.	27.45	71	65	27.32	65	63	89	0	0	0	....	0	0	Cir. & cu.	3-4	S.	....	....	....	....	Cloudy.
	2	0 a. m.	27.45	71	70	27.32	70	65	75	N.	4	.08	....	Stratus ..	1-4	Cumulus	2-4	W.	....	....	....	....	Cloudy.
	3	0 a. m.	27.45	72	73	27.32	73	67	72	N.	6	.18	....	Stratus ...	2-4	Cirrus ..	1-4	N. W.	....	....	....	....	Cloudy.
	4	0 a. m.	27.46	73	72	27.33	72	66	71	N. E.	4	.08	....	Stratus ...	1 4	0	0	0	....	....	....	....	Clear.
	5	0 a. m.	27.47	73	70	27.34	70	66	80	N. E.	1	.01	....	Stratus ...	1-4	Cumulus	2-4	N. W.	....	....	....	....	Fair.
	6	0 a. m.	27.47	73	71	27.35	71	66	75	N. E.	4	.08	....	0	0	Cir. & cu.	3-4	W.	....	....	....	....	Fair.
	7	14 a. m.	27.50	73	75	27.37	75	68	68	N. E.	1	.01	....	0	0	Cumulus	2-4	S. W.	....	....	....	....	Fair.
	8	0 a. m.	27.53	74	74	27.39	74	68	72	N. E.	1	.01	....	Stratus ...	1-4	Cumulus	1-4	S. W.	....	....	....	....	Fair.
	9	0 a. m.	27.53	76	79	27.38	79	69	58	0	0	0	....	0	0	Cumulus	3-4	W.	....	....	....	....	Fair.
	10	0 a. m.	27.54	79	77	27.39	77	69	68	0	0	0	....	0	0	Cumulus	3-4	W.	....	....	....	....	Fair.
	11	0 a. m	27.54	78	76	27.40	76	70	73	S. E.	1	.01	....	0	0	Cumulus	3-4	W.	....	....	....	....	Fair.
	12	0 m.	27.52	78	77	27.38	77	70	69	0	0	0	23	0	0	Cumulus	3-4	W.	....	....	....	....	Fair.
Knoxville, Tenn.	7	0 a. m.	29.23	77	72	29.083	71	69	87	S. W.	8	.32	....	0	0	Cirrus ..	1-4	0	....	....	....	....	Fair.
	7	7 a. m.	29.23	77	72	29.083	71	69	87	S. W.	8	.32	....	0	0	Cirrus ..	1-4	0	....	....	....	....	Fair.
	11	32 a. m.	29.23	82	82	29.083	81	74	70	S. W.	8	.32	200	0	0	Cumulus	4-4	W.	....	....	....	....	Cloudy.

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Meteorological record for September 5, 1873—Continued.

(Hourly observations.)

Place of observation.	Time of observation.	Barometer.	THERM. Attached.	THERM. Exposed.	Corrected barometer.	HYGROM. Dry bulb.	HYGROM. Wet bulb.	HYGROM. Relative humidity.	WIND. Direction.	WIND. Velocity per hour.	WIND. Pressure per sq. ft.	WIND. Daily velocity.	LOWER CLOUDS. Kind.	LOWER CLOUDS. Amount.	UPPER CLOUDS. Kind.	UPPER CLOUDS. Amount.	UPPER CLOUDS. Direction, (moving from—)	RAIN OR SNOW. Commen'd.	RAIN OR SNOW. Ended.	Amount of rain or melted snow.	Thermometer, daily mean.	Remarks.
Summit of Mount Mitchell, N. C.	1 0 p. m.	23.90	66	58	23.81	58	58	100	S. W.	16	1.28	....	Nimbus...	4-4	Hidden	....	.....	12.35 p. m.	.....	.08	....	Light rain.
	2 0 p. m.	23.87	66	59	23.78	59	59	100	W.	16	1.28	....	Fog.....	....	Hidden	....	.....	.....	1.35 p. m.	.04	....	Foggy.
	3 0 p. m.	23.86	66	60	23.77	60	59	94	W.	12	.72	....	Light fog	....	Cumulus	4-4	W.	.....	.....	.16	....	Cloudy.
	4 14 p. m.	23.85	67	59	23.76	59	59	100	N. W.	12	.72	....	Fog.....	....	Hidden	....	.....	3.20 p. m.	4.05 p. m.	....	....	Foggy.
	5 0 p. m.	23.85	67	59	23.76	59	59	100	N. W.	12	.72	....	Fog.....	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	6 0 p. m.	23.84	65	57	23.75	57	57	100	N. W.	16	1.28	....	Light fog	....	Cumulus	4-4	0	.....	.....	....	....	Cloudy.
	7 0 p. m.	23.85	67	57	23.76	57	57	100	N. W.	16	1.28	....	Fog.....	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	8 0 p. m.	23.86	68	57	23.77	57	57	100	N. W.	10	.50	....	Fog.....	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	9 0 p. m.	23.87	64	56	23.79	56	56	100	N. W.	14	.98	....	Fog.....	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 0 p. m.	23.88	64	56	23.80	56	56	100	N. W.	18	1.62	....	Fog.....	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	10 39 p. m.	23.88	63	55	23.80	55	55	100	N. W.	16	1.28	....	Fog.....	....	Hidden	....	.....	.....	.....	....	....	Foggy.
	12 0 p. m.	23.86	61	56	23.78	56	56	100	N. W.	16	1.28	....	Fog.....	....	Hidden	....	.....	.....	.....	....	....	Foggy.
Base of Mount Mitchell, N. C.	1 0 p. m.	27.52	79	77	27.37	77	70	69	0	0	0	....	0	0	Cumulus	3-4	W.	.....	.....	....	....	Fair.
	2 0 p. m.	27.50	81	81	27.35	81	70	55	N. E.	1	.01	....	Stratus ...	2-4	Cumulus	2-4	W.	.....	.....	....	....	Cloudy.
	3 0 p. m.	27.49	82	79	27.34	79	69	58	N. E.	1	.01	....	0	0	Cir.-cu..	4-4	S. W.	.....	.....	....	....	Cloudy.
	4 14 p. m.	27.50	81	78	27.35	78	69	61	0	0	0	....	0	0	Cir.-cu..	3-4	W.	.....	.....	....	....	Fair.
	5 0 p. m.	27.51	80	73	27.36	73	70	85	N. E.	1	.01	....	0	0	Cir.& cu.	3-4	W.	.....	.....	....	....	Fair.
	6 0 p. m.	27.51	79	73	27.36	73	68	76	0	0	0	....	0	0	Cir.& cu.	4-4	W.	.....	.....	....	....	Cloudy.
	7 0 p. m.	27.53	77	70	27.39	70	67	85	0	0	0	....	Stratus ...	3-4	Cumulus	1-4	0	.....	.....	....	....	Cloudy.
	8 0 p. m.	27.54	76	66	27.40	66	65	94	0	0	0	....	0	0	Cirrus ..	1-4	0	.....	.....	....	....	Clear.
	9 0 p. m.	27.53	74	65	27.40	65	63	89	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear.
	10 0 p. m.	27.55	72	64	27.42	64	62	89	0	0	0	....	0	0	Cumulus	1-4	W.	.....	.....	....	....	Clear.
	10 39 p. m.	27.55	72	63	27.42	63	62	94	0	0	0	....	0	0	Cumulus	1-4	W.	.....	.....	....	....	Clear.
	12 0 p. m.	27.52	70	61	27.40	61	60	94	0	0	0	....	0	0	0	0	0	.....	.....	....	....	Clear.
Knoxville, Tenn..	2 0 p. m.	29.20	84	85	29.045	84	74	61	S. W.	8	.32	....	0	0	Cir.& cu.	4-4	S. W.	.....	.....	....	....	Cloudy.
	4 7 p. m.	29.21	84	84	29.055	83	74	64	S. W.	8	.32	....	Stratus ...	1-4	Cir.& cu.	3-4	S. W.	.....	.....	....	....	Cloudy.
	9 0 p. m.	29.26	78	73	29.121	72	71	95	N. W.	1	.01	....	0	0	Cir.& cu.	2-4	0	6 p. m ...	6.40 p. m.	.36	....	Clearing.
	10 32 p. m.	29.23	78	73	29.091	72	71	95	N. W.	4	.08	....	0	0	0	0	0	.....	.....	....	....	Clear.

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PAPER 17.

Showing stations inspected, by whom, and when inspected.

Stations.	Name of inspector.	Date.
Augusta, Ga	First Lieut. Charles S. Smith, acting signal-officer.	Feb. 12, 1873.
Alpena, Mich	Second Lieut. A. W. Greely, acting signal-officer.	Mar. 28–31 73.
Burlington, Vt	Second Lieut. A. W. Greely, acting signal-officer.	Dec. 3–5, 1872.
Baltimore, Md	Second Lieut. A. W. Greely, acting signal-officer.	Feb. 4–6, 1873.
Buffalo, N. Y	Second Lieut. A. W. Greely, acting signal-officer.	Mar. 8–15, 1873.
Breckenridge, Minn	Second Lieut. A. W. Greely, acting signal-officer.	May 17–20, 1873.
Boston, Mass	Second Lieut. A. W. Greely, acting signal-officer.	Dec. 23, 1872, to Jan. 6, 1873.
	First Lieut. A. W. Greely, acting signal-officer.	Sept. 23 to Oct. 1, 1873.
Cleveland, Ohio	First Lieut. Charles S. Smith, acting signal-officer.	Oct. 24, 1872.
	Second Lieut. A. W. Greely, acting signal-officer.	Mar. 16–21, 73.
Cincinnati, Ohio	First Lieut. Charles S. Smith, acting signal-officer.	Nov. 7, 1872.
	First Lieut. Charles S. Smith, acting signal-officer.	April 1, 1873.
Cape May, N. J	Second Lieut. A. W. Greely, acting signal-officer.	Jan. 30–31, 1873.
Chicago, Ill	Second Lieut. A. W. Greely, acting signal-officer.	April 13–24, 73.
Detroit, Mich	First Lieut. Charles S. Smith, acting signal-officer.	Oct. 15, 1872.
	Second Lieut. A. W. Greely, acting signal-officer.	Oct. 2–9, 1873.
Denver, Colo	Second Lieut. A. W. Greely, acting signal-officer.	Nov. 6–9, 1872.
Davenport, Iowa	Second Lieut. A. W. Greely, acting signal-officer.	June 7–13, 1873.
Duluth, Minn	Second Lieut. A. W. Greely, acting signal-officer.	May 7–10, 1873.
Dubuque, Iowa	First Lieut. A. W. Greely, acting signal-officer.	Aug. 11, 12, and 13, 1873.
Escanaba, Mich	First Lieut. Charles S. Smith, acting signal-officer.	Oct. 1, 1872.
	Second Lieut. A. W. Greely, acting signal-officer.	April 29 to May 1, 1873.
Erie, Pa	First Lieut. A. W. Greely, acting signal-officer.	Aug. 15 and 16, 1873.
Eastport, Me	First Lieut. A. W. Greely, acting signal-officer.	Sept. 16 and 17, 1873.
Fort Sully, Dak. Ter	First Lieut. A. W. Greely, acting signal-officer.	July 20 and 21, 1873.
Galveston, Tex	First Lieut. Charles S. Smith, acting signal-officer.	March 3, 1873.
Grand Haven, Mich	Second Lieut. A. W. Greely, acting signal-officer.	April 10–12, 73.
Indianola, Tex	First Lieut. Charles S. Smith, acting signal-officer.	March 6, 1873.
Jacksonville, Fla	First Lieut. Charles S. Smith, acting signal-officer.	Feb. 5, 1873.
Key West, Fla	First Lieut. Charles S. Smith, acting signal-officer.	Dec. 20, 1872.

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wing stations inspected, by whom, and when inspected—Continued.

ons.	Name of inspector.	Date.
.....	First Lieut. A. W. Greely, acting signal-officer.	June 15–18, '73.
.....	First Lieut. Charles S. Smith, acting signal-officer.	Feb. 4, 1873.
.....	First Lieut. Charles S. Smith, acting signal-officer.	March 26, 1873.
aus	First Lieut. A. W. Greely, acting signal-officer.	June 29 to July 2, 1873.
.....	First Lieut. A. W. Greely, acting signal-officer.	Aug. 8, 9, and 10, 1873.
ton, N. H..	Second Lieut. A. W. Greely, acting signal-officer.	Dec. 7–9, 1872.
a.....	First Lieut. Charles S. Smith, acting signal-officer.	Feb. 15, 1873.
.....	First Lieut. Charles S. Smith, acting signal-officer	Feb. 18, 1873.
....	First Lieut. Charles S. Smith, acting signal-officer.	March 21, 1873.
.....	Second Lieut. A. W. Greely, acting signal-officer.	April 23–28, '73.
.....	Second Lieut. A. W. Greely, acting signal-officer.	May 1, 2, 1873.
Va.....	First Lieut. A. W. Greely, acting signal-officer.	Aug. 18–21, 1873.
.....	Second Lieut. A. W. Greely, acting signal-officer.	Jan. 11–14, 1873.
n.....	Second Lieut. A. W. Greely, acting signal-officer.	Jan. 15–17, 1873.
. Y.....	Second Lieut. A. W. Greely, acting signal-officer.	Jan. 19–24, 1873.
.....	Second Lieut. A. W. Greely, acting signal-officer.	Feb. 12–15, 1873.
.....	First Lieut. Charles S. Smith, acting signal-officer.	Feb. 22, 1873.
.....	First Lieut. Charles S. Smith, acting signal-officer.	March 24, 1873.
.....	Second Lieut. A. W. Greely, acting signal-officer.	Feb. 24–28, 1873.
.....	First Lieut. A. W. Greely, acting signal-officer.	July 28 to Aug. 5, 1873.
.....	Second Lieut. A. W. Greely, acting signal-officer.	Oct. 15–18, 1872.
.....	First Lieut. Charles S. Smith, acting signal-officer.	Nov. 11, 1872.
.....	Second Lieut. A. W. Greely, acting signal-officer.	Dec. 16–19, 1872.
	First Lieut. A. W. Greely, acting signal-officer.	Sept. 18–20, '73.
.....	First Lieut. Charles S. Smith, acting signal-officer.	Jan. 21, 1873.
.....	Second Lieut. A. W. Greely, acting signal-officer.	Jan. 25–29, 1873.
.....	Second Lieut. A. W. Greely, acting signal-officer.	May 24–27, 1873.
.....	Second Lieut. A. W. Greely, acting signal-officer.	March 1–8, 1873.
.....	Second Lieut. A. W. Greely, acting signal-officer.	Oct. 8–12, 1872.
.....	Second Lieut. A. W. Greely, acting signal-officer.	Oct. 27, 1872.
.....	Second Lieut. A. W. Greely, acting signal-officer.	Nov. 12, 13, 1872.
.....	First Lieut. Charles S. Smith, acting signal-officer.	Feb. 9, 1873.

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Showing stations inspected, by whom, and when inspected—Continued.

Stations.	Name of inspector.	Date.
Shreveport, La	First Lieut. Charles S. Smith, acting signal-officer.	March 11, 1873.
Saint Paul, Minn	Second Lieut. A. W. Greely, acting signal-officer.	May 6–10, 1873.
Saint Louis, Mo	First Lieut. A. W. Greely, acting signal-officer.	June 17–24, 73.
Toledo, Ohio	First Lieut. Charles S. Smith, acting signal-officer.	Oct. 21, 1872.
	Second Lieut. A. W. Greely, acting signal-officer.	Mar. 21–25, 73.
Vicksburgh, Miss	First Lieut. Charles S. Smith, acting signal-officer.	March 17, 1873.
Wood's Hole, Mass	Second Lieut. A. W. Greely, acting signal-officer.	Jan. 6, 7, 1873.
Yankton, Dak. Ter	First Lieut. A. W. Greely, acting signal-officer.	July , 1873. 5–

PAPER 18.

INSTRUCTIONS FOR MAKING AND REPORTING TELEGRAPHIC RIVER OBSERVATIONS FOR THE SIGNAL-SERVICE, UNITED STATES ARMY.

WAR DEPARTMENT, OFFICE OF THE CHIEF SIGNAL-OFFICER,
DIVISION OF TELEGRAMS AND REPORTS FOR THE
BENEFIT OF COMMERCE AND AGRICULTURE.
Washington, D. C., April 10, 1873.

1. All measurements at each station will be made from the bench-mark or water-level in common use by river-men at that station, and the depth of water from the low of the river to this level, at the point where the gauge in use is located, will be reported to this office at the time of sending in the first mail reports.

2. The gauge used will be put up by the observer at each station at the expense of this office, and will be made of pine or oak timber, two inches thick by ten inches in width, and of sufficient length to cover the full range of the river between extreme low-water and high-water marks. This timber will be placed edgewise and firmly imbedded in the earth, leaving one and a half inches of its width exposed above the level of the ground. The upper edge will be planed smooth, and carefully graduated in feet and inches, *after being placed in position*, taking the established bench-mark or level referred to in Par. 1 as the zero of the scale, and numbering the feet and inches both above and below that point, unless it is at extreme low-water mark, in which case the numbers will all be above the zero of the scale. [Figures 1 and 2.] Especial pains will be taken in graduating the gauge to see that the distances marked off upon it for each foot and its subdivisions will correspond exactly to the vertical foot and subdivisions of which they are the measure. This can be readily done by means of an ordinary spirit-level, a straight-edge on which to place the level, and a graduated rule fixed vertically, from which to take the measurement.

3. Observations will be made daily from May 1 to July 31 and October 1 to November 30 of each year, and at such intermediate times as may be desired by the Chief Signal-Officer, or rendered necessary by any sudden or unexpected change in the condition of the river.

4. Whenever the rise or fall of water is gradual, one observation per day will be made at 3 p. m., local time, during the periods named above. When the change is sudden and unusual in its character, reports will be made every three hours during such change until the river resumes its normal condition.

5. Observations will be made on Sundays at the regular hours, and delivered punctually at the telegraph-office, as on other days of the week.

6. All regular reports will be sent in the cipher accompanying these instructions and signed "Observer," only. The *name* of the observer will not be given. They will consist of five words each, (beside the address and signature,) arranged in the following order:

1. Name of station.
2. Date and time of report.

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of weather and direction of wind.
h of water in feet.
h of water in inches.
th word will show the distance in feet above or below the bench-mark, h word the odd inches, when there are any. If the depth can be expressed ie, the word "naught" will be sent in the fifth space. When the river is me of report, observers will use the cipher-words in the column headed l those in the column headed "Fall" when it is falling.

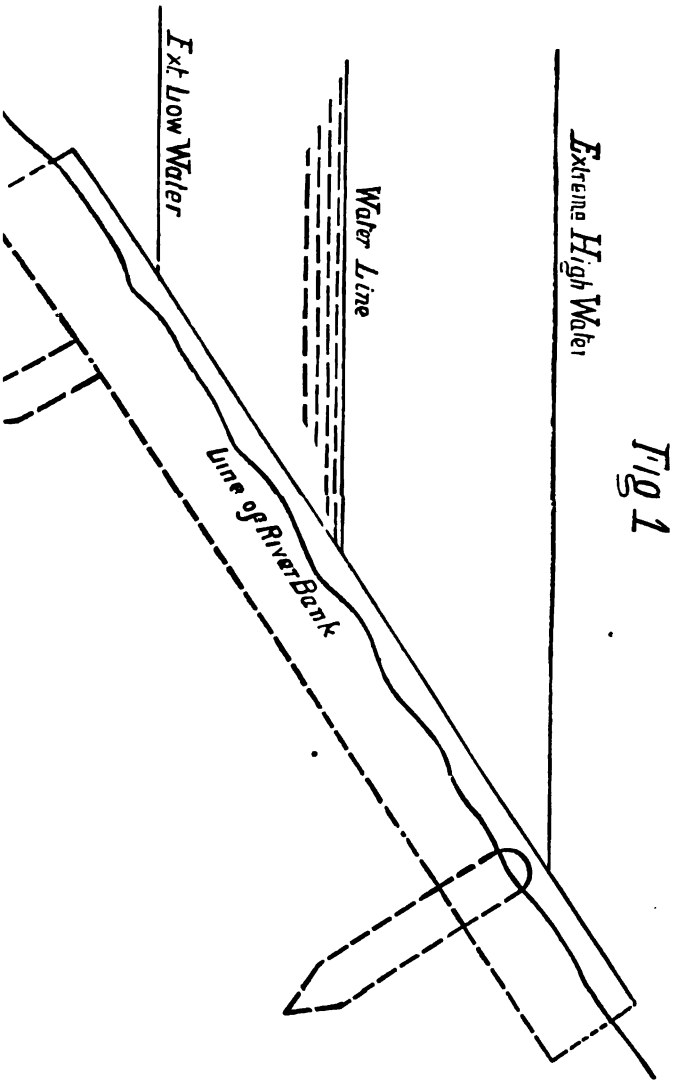


Fig 1

eports will be written in duplicate on Form 1, and one copy filed, properly and signed, at the telegraph-office within thirty minutes after the observa- ıde. The report from ——— will be sent to the observer-sergeant at ———. ıed copy of each report made during any one day will be mailed on the morn- succeeding day to the "Chief Signal-Officer, Washington, D. C." duplicates (Form 1) must be properly dated, timed, and signed, as indicated forms, and must also show upon their face the time at which they were filed egraph-office.

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9. A weekly report (on Form 27) will be made to this office, showing the number of reports sent during each day of the week; the line by which they were sent; time of filing in telegraph-office; and such other data as may be indicated by the heads of the different columns.

10. All necessary blanks, forms, stationery, &c., will be furnished by this office, and will not be purchased by observers without special authority from the Chief Signal-Officer. Timely requisition will be made upon this office for additional blanks and stationery whenever necessary.

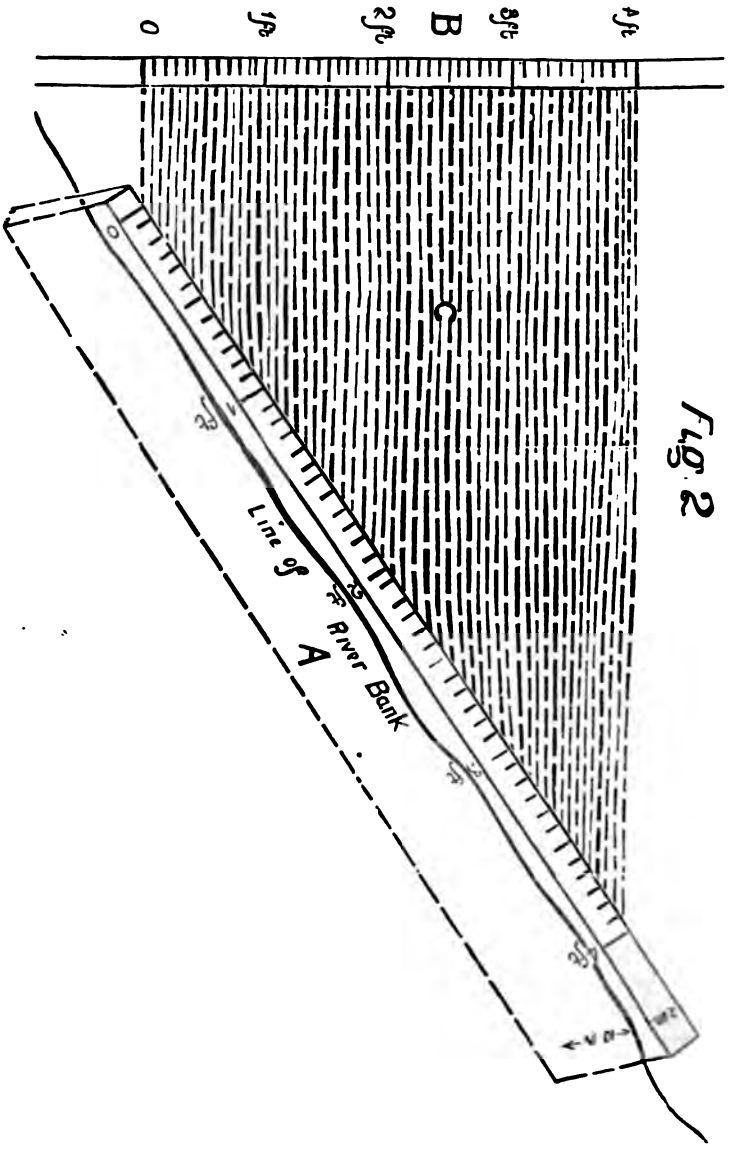


Fig. 2

11. All bills for services or for material furnished should be rendered monthly, and will be settled by the property and disbursing officer of the Signal-Office as soon after their receipt as the necessary vouchers can be signed. The bill for construction of gauge will be settled promptly upon its receipt at this office. Observers will not [illegible]

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ms or reports on official business, as settlement will be made by the office
legraph company direct.
vers will arrange, as far as practicable, to have some competent, reliable
ake reports in case of their sickness or unavoidable absence; and, when
, will see that the person so employed is properly instructed in his duties.
l telegraphic reports will be made to this office of the formation or break-
ce-gorges or other obstructions in the river, and of the presence of float-
mber, when of sufficient extent to render navigation unsafe, stating, in
ds as possible, the location and extent of the gorge, break, or obstruction
ance.
expected that all observers will make their obervations and reports *accu-*
promptly, bearing constantly in mind the fact that their usefulness, when
this office, depends wholly upon these two conditions.
hief Signal-Officer reserves to himself the right of withholding payment
server who shall neglect to make his reports accurately and promptly.
ever necessary, reports from adjoining stations will be sent to observers,
given by them to the press, and also posted in such public places as are
nted by river-men and merchants interested in the condition of the river.
l communications by mail, addressed "Chief Signal-Officer of the Army,
n, D. C.," go free of postage until June 30, 1873, after which they must be
tamps for this purpose will be furnished from the Signal-Office.

FOR TRANSMISSION OF TELEGRAPHIC RIVER OBSERVATIONS FOR THE SIGNAL-SERVICE, UNITED STATES ARMY.

INSTRUCTIONS FOR USING THE CIPHER.

report will consist of *five* words besides the address and signature. In the
of the form used the *name* of the station from which the report is made will
; in the second space, the word for *date* and *time* of report; in the third space,
state of weather and *direction of wind*; in the fourth space, the *depth* of water
in the fifth space the *depth in inches* in excess of the feet. The cipher-words
ll cases be written plainly and correctly.

EXAMPLE.

(Form 1.)

WAR DEPARTMENT, SIGNAL-SERVICE UNITED STATES ARMY,
DIVISION OF TELEGRAMS AND REPORTS FOR THE
BENEFIT OF COMMERCE AND AGRICULTURE.

Report of observation taken at Hermann on April 1, at 6 p. m.

rver-Sergeant, Saint Louis.				
nn.	Gab.	Lomond.	Harden.	Often.
				Observer.

to operator at 6.20 p. m.
Operators will send only the matter inside the heavy lines.

Translation.

	Name of station	Hermann.
	Date of report	First day of the month.
	Time of report	6 o'clock p. m.
	State of weather	Heavy rain.
	Direction of wind	Northwest.
	Height of water above bench-mark	12 feet 5 inches.

River rising.

her-words to be used when the water is either *above* or *below* the bench-
l be found on page 956. When the water is *rising*, the words will be
m the left-hand columns; when it is *falling*, from the right-hand columns.

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DATE AND TIME OF REPORT.

(Second space in Form 1.)

Date.	3 p. m.	6 p. m.	9 p. m.	12 midnight.	3 a. m.	6 a. m.	9 a. m.	12 m.
1	Cad.	Gab.	Mace.	Nag.	Kaffer.	Idea.	Pace.	Sack.
2	Cake.	Gage.	Made.	Nail.	Kale.	Idiom.	Pack.	Sad.
3	Calf.	Gain.	Magi.	Nash.	Kalif.	Idle.	Pad.	Safe.
4	Cam.	Game.	Main.	Nave.	Kamsin.	If.	Pagan.	Salt.
5	Camp.	Gang.	Make.	Navy.	Kaw.	Ignite.	Page.	Same.
6	Cane.	Gap.	Malt.	Nay.	Kedge.	Ilex.	Paint.	Sample.
7	Cape.	Gard.	Man.	Neal.	Keen.	Iliad.	Pale.	Sand.
8	Cary.	Gas.	Mark.	Neap.	Keep.	Ilk.	Palm.	Sash.
9	Case.	Gate.	Max.	Near.	Keg.	Image.	Palsy.	Sauce.
10	Cash.	Gaul.	Maze.	Neck.	Keal.	Imagine.	Pan.	Saw.
11	Cat.	Gave.	Mean.	Ned.	Kennel.	Imbank.	Panel.	Say.
12	Chew.	Gay.	Meek.	Nero.	Kennedy.	Imbibe.	Pansy.	Scant.
13	City.	Gem.	Meg.	Nest.	Kept.	Imbow.	Pardon.	Scale.
14	Clip.	Get.	Mend.	New.	Ketch.	Imburse.	Pass.	Sense.
15	Coal.	Gift.	Met.	Next.	Key.	Imp.	Pause.	Send.
16	Cob.	Gild.	Mine.	Nice.	Kick.	In.	Paw.	Sex.
17	Coke.	Gin.	Minx.	Nick.	Kid.	Incase.	Peace.	Shade.
18	Cold.	Gird.	Moat.	Nigh.	Kidder.	Index.	Peak.	She.
19	Come.	Give.	Mob.	Nile.	Kill.	India.	Peg.	Shine.
20	Copy.	Glad.	Mood.	Nip.	Kiln.	Indite.	Pen.	Shrub.
21	Cork.	Glen.	Mope.	Nod.	Kimbo.	Indorse.	Pelt.	Side.
22	Cost.	Go.	Morn.	Nook.	Kind.	Induce.	Pike.	Sick.
23	Cox.	Gone.	Moss.	Noon.	King.	Indulge.	Pin.	Sign.
24	Crab.	Good.	Moth.	Nor.	Kink.	Infant.	Pit.	Silk.
25	Crow.	Gray.	Move.	Nose.	Kiss.	Infect.	Pitch.	Sin.
26	Cry.	Grin.	Mown.	Not.	Kite.	Infer.	Plant.	Sing.
27	Cuba.	Grub.	Mud.	Noun.	Knap.	Influx.	Plain.	Sink.
28	Cud.	Gulf.	Muff.	Now.	Knave.	Ink.	Plow.	Skate.
29	Cup.	Gun.	Mugs.	Nude.	Knife.	Insane.	Plum.	Skill.
30	Cuff.	Gust.	Musk.	Nut.	Knock.	Into.	Plug.	Skunk.
31	Cur.	Guy.	Myth.	Nye.	Know.	Invoke.	Plush.	Sting.

All cipher-words should be written plainly and distinctly.

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(Same space in Form 1.)

	Wind blowing from the—								
	N.	N. E.	E.	S. E.	S.	S. W.	W.	N. W.	Calm.
Clear	Agnes.	Eliza.	Mabel.	Adam.	Cowper.	China.	Danube.	Aral.	Beech.
Foggy	Alice.	Fanny.	Martha.	Allen.	David.	Dublin.	Hudson.	Azof.	Cedar.
Fair	Amy.	Flora.	Mary.	Andrew.	Dickens.	Geneva.	Huron,	Baltic.	Cherry.
Cloudy	Anna.	Grace.	Maud.	Bacon.	Grant.	Italy.	Jordan.	Caspian.	Elm.
Clearing up	Betsey.	Helen.	Nellie.	Ben.	Green.	Japan.	Mohawk.	Como.	Hemlock.
Threatening storm	Carrie.	Ida.	Olive.	Bryant.	Holmes.	Malta.	Niagara.	Garda.	Maple.
Light rain	Chloe.	Isabel.	Rachel.	Burke.	Homer.	Milan.	Ohio.	Java.	Oak.
Heavy rain	Clara.	Jane.	Rhoda.	Burns.	John.	Moscow.	Potomac.	Lomond.	Palm.
Light snow	Delia.	Josie.	Sarah.	Byron.	Mack.	Nantes.	Tagus,	Simcoe.	Pine.
Heavy snow	Dinah,	Judith.	Sophia.	Charles.	Ross.	Naples.	Volga.	Wener.	Spruce.
Hail or sleet	Edith.	Julia.	Susan.	Clark.	Sabine.	Paris.	Wabash.	Yellow.	Walnut.

All cipher-words should be written clearly and distinctly.

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DEPTH OF WATER IN FEET.

(The following cipher-words will be used when the water is *above* bench-mark.)

(*Fourth space in Form* 1.)

	Rise.	Fall.		Rise.	Fall
0	Habit.	Habit.	26	Hazy.	Lavish
1	Hadley.	Labor.	27	Heal.	Law.
2	Hague.	Lackey.	28	Heap.	Lawn.
3	Hair.	Lad.	29	Heart.	Lawyer.
4	Half.	Laden.	30	Heath.	Lead.
5	Halo.	Lady.	31	Heathen.	League.
6	Halter.	Lager.	32	Heavy.	Lean.
7	Hamlet.	Lain.	33	Hebe.	Leaping.
8	Handy.	Lamb.	34	Hebrew.	Learn.
9	Hang.	Land.	35	Hebron.	Leaven.
10	Happy.	Landing.	36	Hector.	Lecture.
11	Harbor.	Lansing.	37	Held.	Ledger.
12	Harden.	Lantern.	38	Helix.	Left.
13	Harem.	Lapse.	39	Helm.	Leg.
14	Harlot.	Larch.	40	Helot.	Legal.
15	Harm.	Lard.	41	Help.	Legend.
16	Harper.	Large.	42	Hence.	Leghorn.
17	Harry.	Lash.	43	Henry.	Lemon.
18	Harsh.	Late.	44	Herald.	Lenox.
19	Harvest.	Lath.	45	Herd.	Lentel.
20	Haste.	Latin.	46	Heresy.	Lesson.
21	Hatch.	Latrobe.	47	Hermit.	Level.
22	Hawk.	Laugh.	48	Hernia.	Levity.
23	Hayti.	Laura.	49	Heroic.	Levy.
24	Hazard.	Laurel.	50	Here.	Lend.
25	Hazel.	Lava.			

All cipher-words should be written plainly and distinctly.

DEPTH OF WATER IN INCHES.

(The following cipher-words will be used when the water is above the bench-mark.)

(*Fifth space in Form* 1.)

	Rise.	Fall.		Rise.	Fall.
0	Naught.	Naught.	7	Omit.	Wench.
1	Oath.	Wafer.	8	Order.	Weak.
2	Obtain.	Waken.	9	Organ.	Weston.
3	Odium.	Walk.	10	Other.	Whack.
4	Offend.	Wander.	11	Ought.	What.
5	Often.	Water.			
6	Omega.	Wave.			

All cipher-words should be written plainly and distinctly.

SURFACE OF WATER BELOW BENCH-MARK.

(The following cipher-words will be used only when the water is below the bench-mark or zero of gage *Feet.*

	Rise.	Fall.		Rise.	Fall.
1	Quab.	Race.	11	Queen.	Refit.
2	Quack.	Rack.	12	Quell.	Relay.
3	Quaff.	Raft.	13	Quench.	Rent.
4	Quag.	Rag.	14	Quip.	Rich.
5	Quaid.	Raid.	15	Quire.	Rid.
6	Quail.	Rake.	16	Quince.	Rife.
7	Quaint.	Rank.	17	Quit.	Ring.
8	Quake.	Rap.	18	Quorum.	Rise.
9	Quart.	Rat.	19	Quote.	Rule.
10	Quash.	Read.	20	Quotient.	Rum.

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SURFACE OF WATER BELOW BENCH-MARK.

Inches.

Fall.	Rise.	Fall.
Each.	7 Vest.	Eat.
Ear.	8 Vex.	Eden.
Eagle.	9 Vice.	Edge.
Earth.	10 Vine.	Engine.
Earn.	11 Virge.	End.
Ease.		

All cipher-words should be written plainly and distinctly.

(Form 27.)

WAR DEPARTMENT,
SIGNAL SERVICE UNITED STATES ARMY,
DIVISION OF TELEGRAMS AND REPORTS FOR THE BENEFIT OF COMMERCE AND AGRICULTURE.

r observations made during week ending Saturday ——, 187-, at ——.

	No. of observations per day.	Time observation made.	Time filed in telegraph-office.	Line sent by.	Remarks.
..					
...					
...					
....					
....					
....					
.....					
f ob-dur-					

—— ——, *Observer.*

· of this form, properly filled up, will be mailed to the Chief Signal-Officer, n, D. C., on Monday of the week succeeding that of which it is the record. y cause the reports, are not forwarded by telegraph, the fact will be noted, ble explanation, under the head of "Remarks."

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APPENDIX.

The following table of elevations is furnished for the information of all observers. Any errors in the figures and any changes in location of office or elevation of barometer since date given opposite each station will be promptly reported to this office. If no changes have taken place since the date named in the following table, the elevation given will be used for correcting all barometrical observations.

Station and date of last reported change.	Elevation of barometer above ground at office.	Elevation of ground at office above bench-mark.	Bench-mark.	Elevation of bench-mark above mean sea-level.	Total elevation to be corrected for.
	Feet.	*Feet.*		*Feet.*	*Feet.*
Alpena, Mich., September 9, 1872.	18.10	9	Lake Huron	580.00	607.1
Augusta, Ga., May 15, 1872.	28.00	3.00 below railr'd-track.	Railroad track	(?) 147.00	172.0
Baltimore, Md., December 23, 1870.	31.24 above door-sill.			Door-sill above mean-tide, 13.95.	45.1
Boston, Mass, January 9, 1871.	42.00	11.8	City base	23.6	77.4
Breckenridge, Minn., April 21, 1872.	3.00	0	Railroad-track at station.	963.00	966.0
Buffalo, N. Y., June 21, 1873.	55.00	38.00	Erie-canal docking	569.00	662.0
Burlington, Vt., May 24, 1871.	33.35	6.22 below	City base	195.72	222.5
Cairo, Ill., August 19, 1871.	33.00	43.5	Ordinary low water in Ohio River.	275.7	352.
Cape May, N. J., May 17, 1871.	5.5	8.7	Mean sea-level	0	14.2
Charleston, S. C., January 1, 1871.	39.00	(?) 0	Ground at Saint Michael's Church.	22.4	61.4
Cheyenne, W. T., May 1, 1871.	17.00	0	U. P. R. R. track	6,041.00	6,05[illegible]
Chicago, Ill., June 19, 1873.	67.00	14	City base, 2 feet below low water.	576.00	657.0
Cincinnati, Ohio, October 22, 1870.	68.00 above door-sill.	Door-sill above base 113.96.	City base: low water in Ohio River, 1852.	432.00	611.9
Cleveland, Ohio, May 24, 1873.	44.00			638.7	682.7
Corinne, Utah, February 1, 1871.	14.00	0	C. P. R. R. track	4,233.00	4,247
Davenport, Iowa, May 23, 1871.	40.3	31.2	City base, low water	532.88	603.3
Denver, Colo., November 10, 1871.	35.00	13	K. P. R. R. track	5,087.00	5,135
Detroit, Mich., May 15, 1871.	73.00	15.3	City base, Detroit River.	568.00	656.3
Dubuque, Iowa, August 26, 1873.	30.20	56.12		578.3	665.0
Du Luth, Minn., October 18, 1870.	18.22	24.50	Lake Superior, ordinary level.	600.00	642.7
Eastport, Me, March 20, 1873.	31.10	30.15	Sea-level		61.2
Erie, Pa., May 25, 1873	29.63	76.87	Lake-level	564.00	671.5
Escanaba, Mich., May 19, 1871.	16.8	6.5	Lake Michigan, low water.	578.3	601.6
Fort Benton, M. T., October 2, 1872.	3.6	0	Ground	(?) 2,674.00	2,677.
Fort Gibson, March 31, 1873.	19.60				
Fort Garry, Manitoba					
Fort Sully, D. T., April 25, 1872.	16.00	160	Low water Missouri River.	(?) 1,512	(?) 1,688
Galveston, Tex., April 19, 1871.	35.2	4	Mean high tide	1	40.2
Geneva, N. Y					
Grand Haven, Mich., August 15, 1872.	21.00	7.8	City base, 9.2 feet above low water.	587.5	616.3
Halifax, Nova Scotia					
Havana, June 21, 1873	2.267	19.389	Sea-level		21.656
Indianapolis, Ind., February 4, 1871.	46.7	39.00	City base, White River, low water.	661.00	746.7
Indianola, Tex., May 1, 1872.	16.00	0	Ground	9.00	25.0

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Station and date of last reported change.	Elevation of barometer above ground at office.	Elevation of ground at office above bench-mark.	Bench-mark.	Elevation of bench-mark above mean sea-level.	Total elevation to be corrected for.
	Feet.	*Feet.*		*Feet.*	*Feet.*
Jacksonville, Fla., September 21, 1871.	17.66	0	Ground	(?) 5.24	(?) 22.9
Keokuk, Iowa, December 15, 1871.	45.9	66.36	Low-water mark on bridge.	471.64	583.9
Key West, Fla., August 1, 1871.	12.00	0	Ground	5.00	17.00
Kingston, Canada, February 12, 1872.	77.00			319.00	326.7
Knoxville, Tenn., January 15, 1871.	20.00	Below bench, 11.40.	Main floor of Center College.	984.42	993.00
La Crosse, Wis., October 15, 1872.	21.6	11.36	Railroad-track	653.3	686.26
Lake City, Fla., October 16, 1870.	16.00	0	do	200.00	216.00
Leavenworth, Kans., May 20, 1871.	33.00	51.38	City base, low water Missouri River.	729.00	813.38
Lexington, Ky., October 10, 1872.	35.00	(?) 0	Railroad-track	(?) 1,048.00	1,083.00
Louisville, Ky., February 29, 1872.	60.2	Below city bench, 5.9.	City bench, corner of Main and Bullit st's.	441.8	496.1
Lynchburgh, Va., June 2, 1871.	6.5	8.5	Railroad-track	(?) 723.00	738.00
Marquette, Mich., October 9, 1871.	30.11	Below city base, 2.00.	City base, 38.22 feet above ordinary water.	638.22	666.33
Memphis, Tenn., October 9, 1871.	37.00	142.5	City base	119.44	298.94
Milwaukee, Wis., January 25, 1873.	44.5	38.6		578.3	661.4
Mobile, Ala., May 1, 1872.	32.00	0	Ground	9.00	41.00
Montgomery, Ala., September 4, 1872.	29.3	0	do	191.2	220.5
Montreal, Canada					182.00
Morgantown, W. Va	35.11	166.51	Low water, Monongahela River.	789.61	991.23
Mount Washington, N. H., October 5, 1871.	7.4 below bench.		Lieutenant Cram's Summit bench.	6,293.00	6,285.6
Nashville, Tenn., Mar. 21, 1872.	31.5	217.2	City base	255.5	504.2
New Haven, Conn., Dec. 6, 1872.	83.1	0	Ground	23.9	107.00
New London, Conn., Jan. 9, 1871.	16.8	0	Ground	7.10	24.6
New Orleans, La., Nov. 1, 1871.	45.5	5.34 below.	City bench, cor. Canal st. and Cust. House.	15.65	55.81
New York, N. Y., July 26, 1871.	128.00	14.44	City bench, extreme high water.	? 23.16	165.60
Norfolk, Va., Sept. 9, '71.	42.00	13.52	Mean tide-level (?)		55.52
Omaha, Nebr., Dec. 1, 1871.	26.4	71.29	City base, low water of 1857.	948.00	1,045.69
Oswego, N. Y., Oct. 12, 1870.	(?) 33.00	24.00	Lake Ontario, high water (?)	242.00	(?) 299.00
Pembina, D. T., Oct. 15, 1872.	3.00	0	Railroad-track	787.00	790.00
Philadelphia, Pa., Sept. 21, 1871.	53.12	15.00	City base, extreme high water.	3.00	71.12
Pike's Peak					
Pittsburgh, Pa., July 1, 1871.	56.21	40.60	City base, low water.	694.38	791.19
Port Dover, Canada	28.3		Ground	590.7	618.00
Port Stanley, Canada	4.7		Ground	579.4	584.1
Portland, Me., Jan. 13, 1871.	21.00	0	Ground	31.00	52.00
Portland, Oreg., Nov. 1, 1871.	41.9	0.5	City base	57 6	100.00
Punta Rassa, Fla., Nov. 1, 1872.	12.00	0	Ground	5.00	17.00
Quebec, Canada		22.00		314.00	336.00
Rochester, N. Y., Oct. 3, 1872.	84.5	8.9 below bench.	Erie canal tow-path (?)	508.5	584.1
San Antonio, Tex.					
San Diego, Cal., Oct. 15, 1871.	17.72	0	Ground	44.28	62.00
San Francisco, Cal., Oct. 23, 1871.	47.00	6.3	City base	6.7	60.00

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Station and date of last reported change.	Elevation of barometer above ground at office.	Elevation of ground at office above bench-mark.	Bench-mark.	Elevation of bench-mark above mean sea-level.	Total elevation to be corrected for.
	Feet.	*Feet.*		*Feet.*	*Feet*
Santa Fé, N. Mex., June 28, 1873.	16.2	0	Initial stone	(!) 6,846.00	6,862.20
Saugeen, Canada	3.00	.....	Ground	594.00	597.00
Savannah, Ga., April 12, 1871.	26.00	48.24	City base, low water, Savannah river.	3.2 below.	71.04
Shreveport, La., December 6, 1871.	37.00	11.52	City base, high-water mark.	(!) 180.00	228.52
Saint Louis, Mo., July 15, 1871.	82.77	56.77	City directrix	404.00	543.54
Saint Paul, Minn., December 27, 1871.	31.63	92.8	City base, extreme low-water, Mississippi River.	670.00	794.43
Toledo, Ohio, April 1, 1871.	80.00	0	City base, 7.5 above ordinary level of Lake Erie.	569.5	649.5
Toronto, Canada	3.4	.....	Ground	338.6	342.0
Vicksburgh, Miss., October 1, 1872.	30.8	Ground below track of V. & M. R. R., 1.26.	V. and M. railroad-track.	250.56	280.1
Virginia City, M. T., November 21, 1871.	12.7	15.3	City base	(!) 5,482.00	(!)5,510.00
Washington, D. C., March 10, 1872.	42.1	Ground below bench, 26.40.	United States Capitol bench.	89.86	105.56
Wilmington, N. C., December 18, 1870.	24.7	0	Ground	6.00	30.7
Wood's Hole, Mass	.....	.....	.....	.....	.....
Wytheville, Va., January 16, 1873.	14.00	43.8	Railroad-track at depot	2,237.00	2,294.8
Yankton, D. T., July 3, 1873.	28.9	37.9 Below.	0	1,305.00	1,296.00

NOTE.—By "mean sea-level" is meant the mean of the "mean low tide" and "mean high tide" given by the Coast Survey Observations.

The following table is furnished for the information and guidance of all concerned. The regular hours for taking the telegraphic observations are 7.35 a. m., 4.35 p. m., and 11 p. m., Washington mean time.

At stations west of Washington the figures given in the table for each station will be subtracted from the above hours, and the remainder will show the proper local time for the observations.

At stations east of Washington the figures in the table will be added to these hours to obtain the proper local time. Any discrepancies discovered between the figures given here and the local time in use at each station will be promptly reported to this office.

Table showing the difference between local time and Washington mean time at the signal-stations named:

Stations.	Slower than Washington.		Faster than Washington.	
	Minutes.	Seconds.	Minutes.	Seconds.
Alpena, Mich	26	0	.....	.....
Augusta, Ga	19	6	.....	.....
Baltimore, Md	.....	.....	1	6
Boston, Mass	.....	.....	23	6
Breckenridge, Minn	79	0	.....	.....

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lifference between local time and Washington mean time at the signal-stations named—Continued.

Stations.	Slower than Washington.		Faster than Washington.	
	Minutes.	Seconds.	Minutes.	Seconds.
	8	0		
			15	2
	48	8		
			8	0
	11	6		
	110	8		
	42	4		
	30	0		
	18	4		
	141	2		
	54	4		
	112	4		
	24	0		
	55	0		
	60	4		
			45	0
	13	0		
	40	4		
T	134	4		
N	72	0		
nitoba	81	0		
	95	0		
s	71	2		
	0	0		
lich	37	2		
			53	0
	22	8		
nd	36	4		
as	78	0		
la	18	0		
	58	0		
	19	2		
ada			2	0
n	27	6		
s	57	0		
	22	8		
Kans	72	0		
	30	0		
	35	6		
Va	8	0		
ch	41	1		
n	52	0		
Vis	43	6		
	44	0		
Ala	37	6		
nada			14	0
W. Va	12	0		
ngton, N. H			23	8
nn	38	8		
Conn			16	4
Conn			19	6
La	52	0		
Y			12	0
			3	2
	75	6		
			1	6
T	80	0		
, Pa			7	2
W				

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Table showing the difference between local time and Washington mean time at the signal-stations named—Continued.

Stations.	Slower than Washington.		Faster than Washington.	
	Minutes.	Seconds.	Minutes.	Seconds.
Pike's Peak, C. T	112	34		
Pittsburgh, Pa	12	0		
Port Dover, Canada	13	0		
Port Stanley, Canada	17	0		
Portland, Maine			26	8
Portland, Oreg	183	2		
Punta Rassa, Fla	20	0		
Quebec, Canada			24	8
Rochester, N. Y	2	8		
San Antonio, Texas	87	0		
San Diego, Cal	160	8		
San Francisco, Cal	182	0		
Santa Fé, N. Mex	116	0		
Saugeen, Canada	18	0		
Savannah, Ga	16	4		
Shreveport, La	66	8		
Saint Louis, Mo	53	2		
Saint Paul, Minn	64	4		
Toledo, Ohio	26	4		
Toronto, Canada	9	6		
Vicksburgh, Miss	56	0		
Virginia City, M. T	140	0		
Wilmington, N. C	4	0		
Wood's Hole, Mass			26	0
Wytheville, Va	16	0		
Yankton, Dak	82	0		

PAPER 19.

The following statement showing the location of the bench-marks from which the rise and fall of the western rivers is measured for the river-reports of this office is published for the information of all concerned.

BROWNSVILLE, PA.

The zero point on gauge is the depth of water in the channel on June 5, 1873, which was 5 feet.

BRUNSWICK, MO.

The zero of scale is the low-water mark at this point.

CAIRO, ILL.

The zero of gauge is placed at extreme low water of December, 1871. Extreme high water occurred in 1867, when it reached the top of the levee, which is 53 feet above low-water mark.

The bench-mark is the top of the levee.

CINCINNATI, OHIO.

The bench-mark is 20 inches above the bottom of the river—extreme low water. The high-water mark is a point 65 feet 5 inches above the bench-mark.

Extreme high water occurred March 7, 1865, and extreme low water September 13, 1858.

CONFLUENCE, PA.

Depth of river May 19, 1873, 30 inches.
Depth of river at low-water mark, 12 inches.
Zero of gauge above low-water mark, 18 inches.

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DAVENPORT, IOWA.

The gauge was constructed by Colonel Macomb, United States Engineers, on the pivot on draw-bridge pier of the Government bridge, between Davenport and Rock Island. It is in the Davenport channel, and is cut in the stone-work and painted in black and graduated into feet and tenths. Its zero point is the low water of 1863, the lowest water known.

EVANSVILLE, IND.

The zero of gauge is placed at low-water mark of 1867, being 6 feet above the bed of river. A survey made at 3 p. m., April 19, 1873, gave depth of water above low-water mark (1867) 25 feet 4 inches.

FORT BENTON, M. T.

The bench-marks are two iron bars let into river-bank, one at the highest water mark of 1872, the other 19 inches above the lowest water of 1872.

The measurements give the depth of water on the bar in front of the town. The depth of water over the bar at high water is 8 feet 10 inches—at low water not over 18 inches.

NOTE.—Observer ordered by Chief Signal-Officer to use low-water mark as the zero of river-reports instead of bench-mark.

FORT SULLY, D. T.

The means of measurement are two (2) poles planed square, 6 feet 6 inches long, and accurately graduated. They have to be changed daily "to accommodate" the river. The actual depth of water is reported.

FREEPORT, PA.

The bench-mark is 4 feet 6 inches above extreme low-water mark.

HERMANN, MO.

The gauge rests upon the bed of the river and indicates actual depth of water. Depth of water April 24, 1873, at 3 p. m., 12 feet.

JEFFERSON CITY, MO.

Reports are made from low water of 1867 and high water of 1844, the river in 1844 being 31 feet higher than low water of 1867.

Depth of water May 12, 1873, at 3 p. m., 10 feet 10 inches above low-water mark.

KANSAS CITY, MO.

Low-water mark, as established by the chief engineer Missouri River Bridge Company, was in 1867, it being then lower than at any time during which a record was kept. In 1872 it was down to within 7 inches of the mark of 1867. High-water mark, 1844.

KEOKUK, IOWA.

The bench-mark is at the northeast corner of Old Pilot's Indicator, 1,400 feet above the bridge. The height above low-water mark is 24.183 feet, and above high water 8.95 feet. The measurement is not made from the bed of river.

Depth of water in channel at extreme low water, 4 feet 6 inches, and at extreme high water, 24 feet 9 inches to 25 feet 4 inches.

LEAVENWORTH, KANS.

The zero of gauge is placed to correspond with low water in Missouri River. The bench-mark is low water. When the gauge reads 4 feet above zero, there is about 5 feet of water in the river. The bottom of the river changes with the rise and fall of the river.

LEXINGTON, MO.

The zero of gauge is at low-water mark of 1861, being 10 feet 8 inches above the bed of the river. Depth of water in river opposite to gauge, according to measurement made May 15, 1873, was 17 feet 10 inches from bed of the river.

LITTLE ROCK, ARK.

The bottom of gauge is marked 2 feet, and when the water is at that mark there is 2 feet of water in the river. All river-men go by this mark, and the same is reported to the packet company at Memphis and Saint Louis.

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LOUISVILLE, KY.

The zero is the sill of the lock of the Louisville and Portland Canal. The bench-mark is the door-sill of house corner of Tenth and Water streets, and is 28.1 feet above zero. Extreme high water of February 21, 1832, is 41.8 feet above zero. The depth of water is taken from a gauge at the foot of Tenth street, and is used by all river-men. There is no mark that gives the depth of channel.

MARIETTA, OHIO.

Depth of water at time of first report, April 17, 1873, at 3 p. m., was 13 feet 10 inches in the channel.

MEMPHIS, TENN.

The bench-mark on Exchange Building is 148.789 feet above city-level from the bed of the river. High water from the same datum, 100.8 feet in 1867. Low water from same datum, 65.05, December 25, 1872. Water about 70 feet deep in front of city at low water. (?)

NASHVILLE, TENN.

The bench-mark is 62.75 feet above the zero of gauge. The zero corresponds to extreme low water. Bench-mark 23.25 feet above highest water since Nashville has been a signal-station. No definite data as to year of high and low-water marks can be obtained.

MORGANTOWN, WEST VA.

The gauge rests upon the bed of the river, and reports indicate the exact depth of water in the channel.

NEW ORLEANS, LA.

The bench-mark is high-water mark of 1871, (and is marked on the city tide-gauge at which the zero of gauge (from which all river measurements are made) is placed. From this point to the bottom of the river is approximately 178 feet. The zero is 1[illegible] feet above sea-level and 10.5 feet below the city datum-line.

OMAHA, NEBR.

The gauge is attached to a pier of the Union Pacific Railroad bridge, and its zero is the low-water mark of 1867. The high-water mark of the same year is 19 feet above zero of gauge.

PADUCAH, KY.

Depth of water in channel of the river is 59 feet—May 23, 1873. Depth of water below zero of gauge, 56 feet. Low-water mark—depth of channel in 1854—8 feet [illegible] inches.

PITTSBURGH, PA.

The gauge measures the depth of water in the channel. The greatest depth that can be measured by it is 35 feet; the least is two feet. When the water falls below 2 feet another gauge is used. The lowest water-mark known is 9 inches in the channel; the highest water has never reached the top of gauge.

PLATTSMOUTH, NEBR.

There is no fixed bench-mark at this place. Depth of water at 3 p. m., April 19, 1873 3 feet 3 inches.

SHREVEPORT, LA.

The bench-mark is on Commerce street, adjoining the "Transfer Grounds" of the Texas Pacific Railroad. The lowest water-mark, 1872, the reference point in reporting depth of river, is in the bed of river, and 40 feet below high water of 1849, and 25 feet above bottom of river. From bottom of river to high-water mark of 1849 is 65 feet.

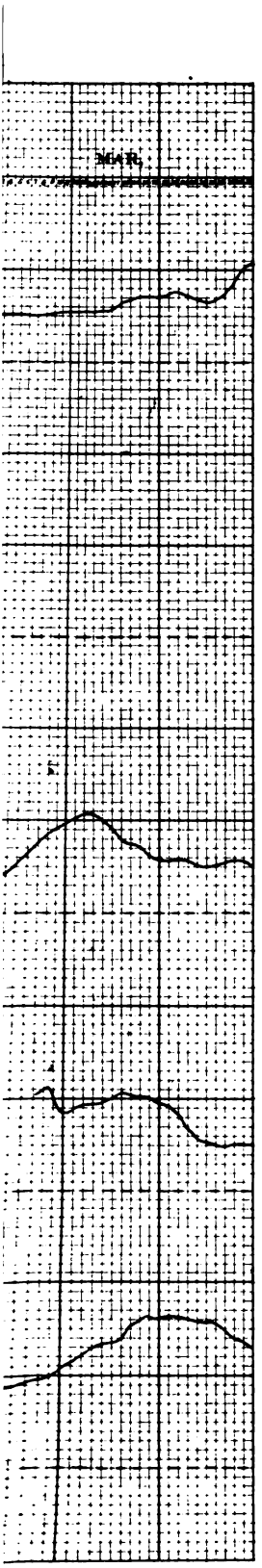
SAINT JOSEPH, MO.

The zero of guage is at low-water mark of 1871. Depth of water from the river-bed to the zero of guage is 8 feet. The navigable depth of water in the channel is 4 feet. Usual depth on bars and shoals during low water is about 3 or 4 feet. From bed-rock to zero of the gauge at Saint Joe, as per the bridge measurement, is 50 feet.

SAINT LOUIS, MO.

The bench-mark is extreme low water of 1863, and high water of 1844. Range of gauge between these two points is 41.39 feet. The gauge has stone foundation and is located at the southeast corner of the Saint Louis elevator building.

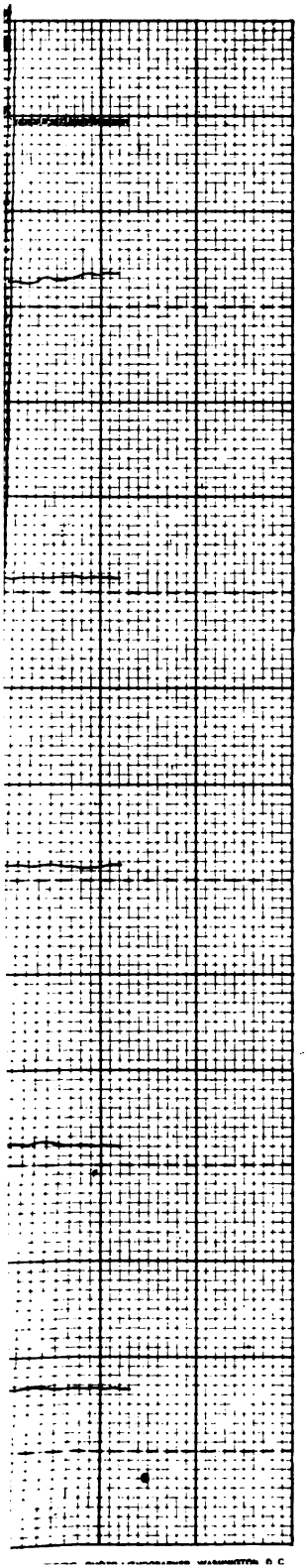
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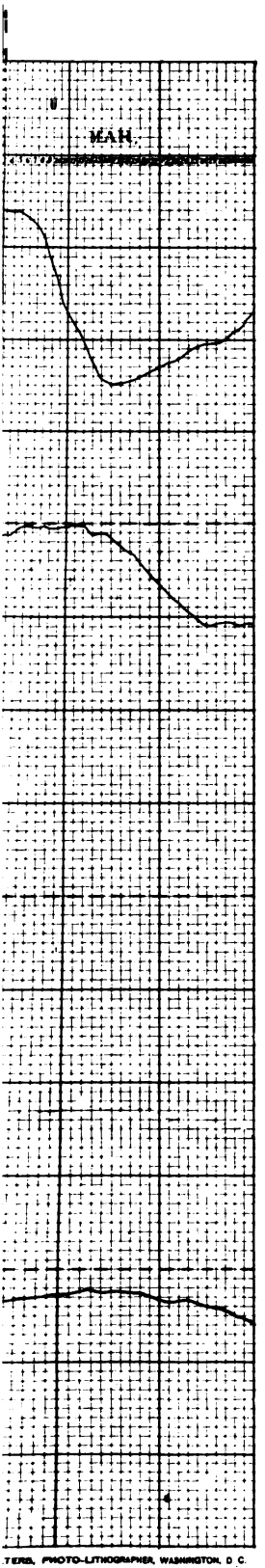
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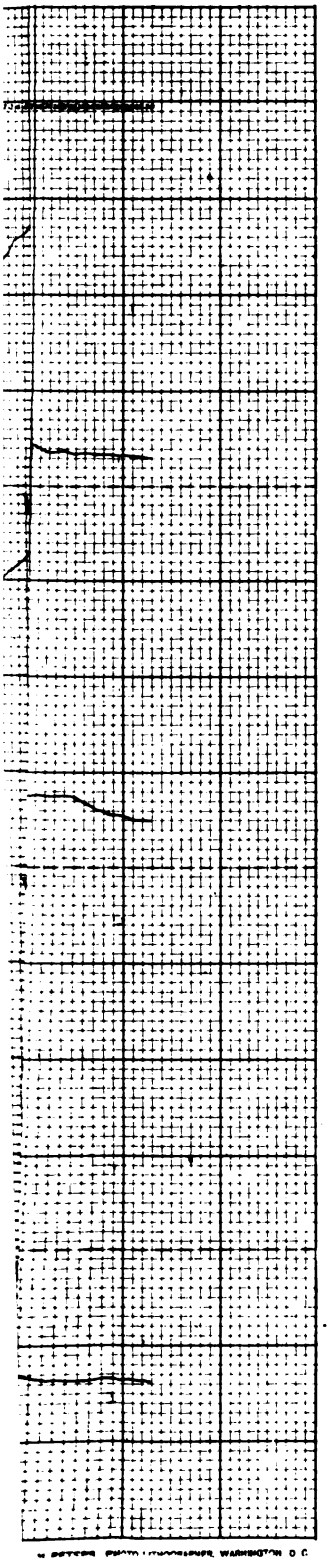
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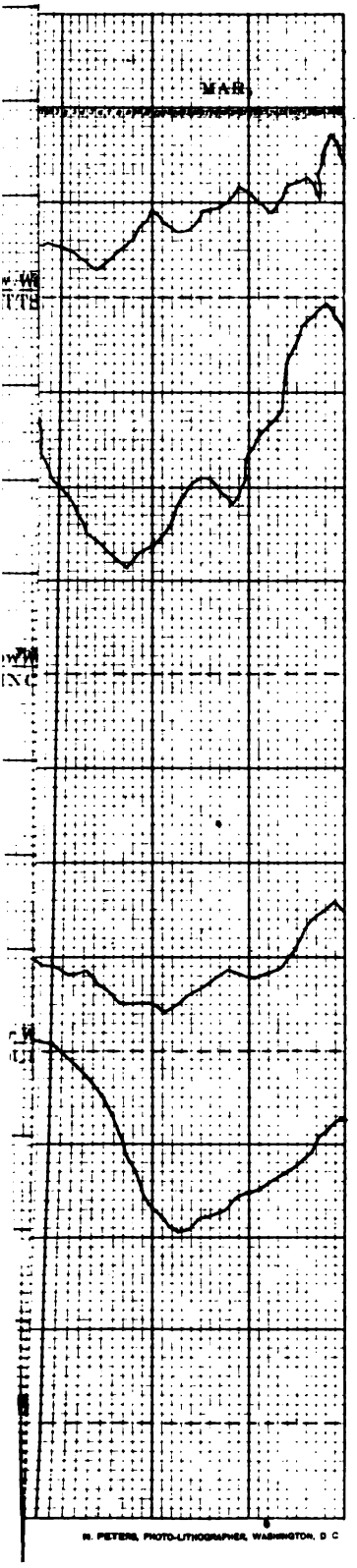
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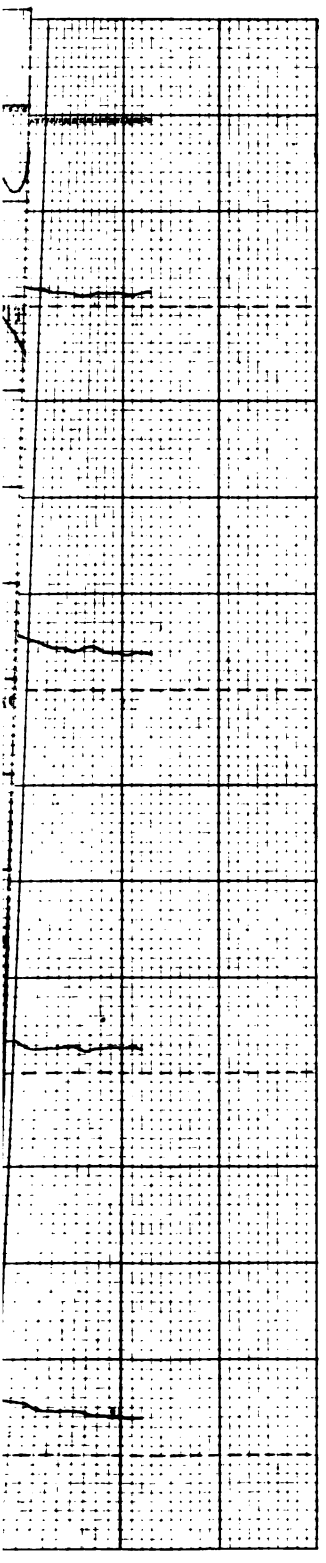
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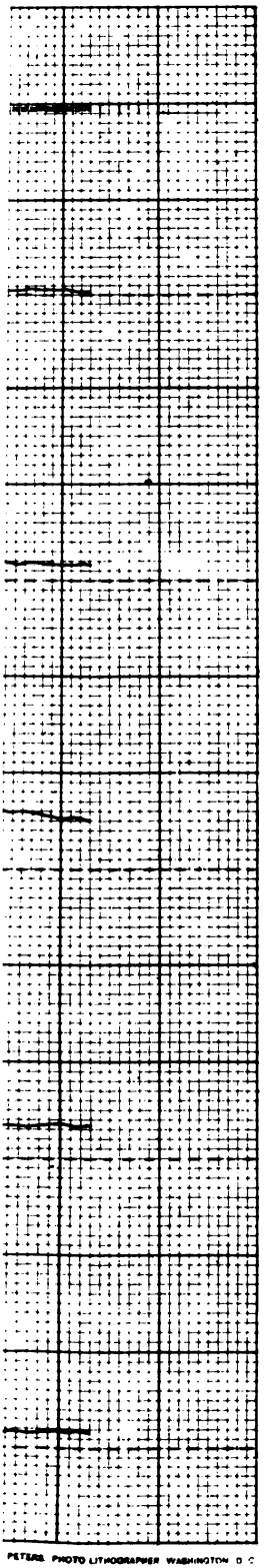
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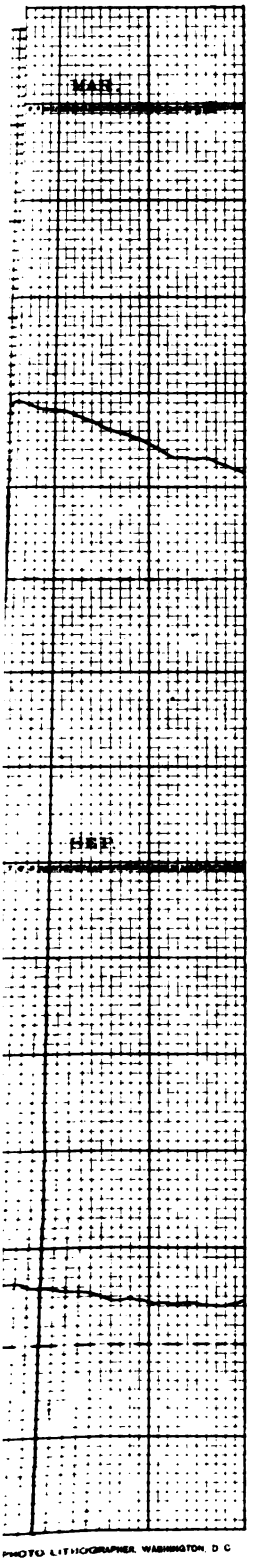
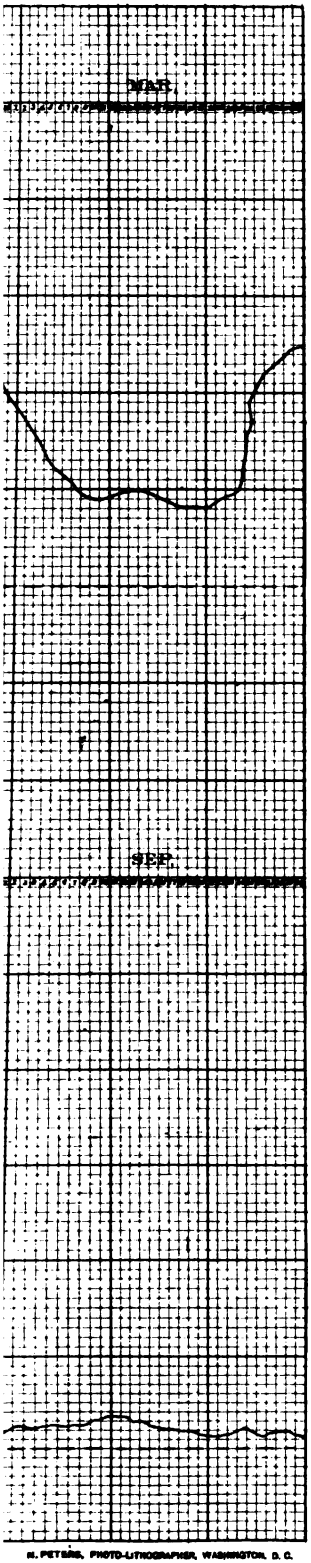


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SAINT PAUL, MINN.

The bench-mark is at the pier of the bridge and is marked at extreme low water of 64. The daily report of river is the depth of water above that mark. The depth of ıter in the channel at extreme low water is 1 foot 11 inches. There is no high-water ırk of any reliability.

VICKSBURGH, MISS.

The bench-mark is attached to one of the posts which supports the elevator located the levee between Crawford and South streets, and is low-water mark of 1871. om it all measurements are made and the zero of the gauge is adjusted to it. Ex- ıme high-water mark of 1862 is 52.9 feet above the bench-mark. The river-bed is 50 ıt 6 inches below, making the depth of water in the channel, when the river is at gh-water mark, 103 feet 3 inches.

YANKTON, D. T.

The bed of river is the zero point of the gauge, and the actual depth of water in the annel is therefore reported.

LA CROSSE, WIS.

The zero of gauge is low-water mark of October 1, 1871, and is 2 feet 2½ inches above e bed of the river. The gauge is attached to one of the piles of the bridge leading North La Crosse.

OIL CITY, PA.

The "bench" is low water of some year when there was 12 inches of water in the annel. The zero of gauge corresponds with this point.

BOONEVILLE, MO.

Measurements are made from the bed of the river. Depth at high water of 1872, feet; depth at low water, 2 feet 6 inches.

NEW GENEVA, PA.

The bench-mark (the zero of gauge) indicates 4 feet of water in the channel. The ghest water occurred in April, 1852, when there was 40 feet of water in the channel.

LE CLAIRE, IOWA.

The gauge used here was built by the Pilot Association in 1865; its bottom (zero int) is at extreme low-water mark of 1864, which indicates 21 inches of water on e rapids.

DUBUQUE, IOWA.

The gauge used at this station is located at the foot of Seventh street. Its zero int is low-water mark of October, 1864, which is 21 feet 10 inches below the high- ıter mark of April 22, 1870. The average depth of water in the channel is 18 feet low the low-water mark of 1864.

PAPER 20.

REPORT OF INSTRUMENT-ROOM.

Number of instruments compared from October 1, 1872, to September 30, 1873.

ırometers	122
ıermometers	142
ygrometers	42
ygrodeiks	12
aximum thermometers	39
inimum thermometers	39
ıemometers	77
ıeroid barometers	6

These comparisons were carefully made by First Lieut. H. H. C. Dunwoody, acting gnal-officer and assistant, and Sergts. George C. Schaeffer and D. C. Ralston, Signal- rvice, United States Army.

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Corrections for instrumental error of the several barometers have been computed uniformly from a series of fifty readings compared with a similar series of readings of the standard barometer. When the result of these readings gave an error of more than one-tenth of one inch, the instrument was regarded as unfit for use.

The thermometers have been compared with the standard at temperature varying from that of melting ice to 130° Fahrenheit, the lower temperature being produced by broken ice. For the indication of the higher temperature, the bulbs of the thermometers were immersed in heated water.

In these comparisons a variation of one degree from the standard rendered the instrument unfit for use.

The following-named self-recording instruments have been in practical use in the instrument-room during the past year, and the records filed:

Hough's electrical printing barometer.
Hough's electrical recording barometer.
Wild's mechanical barometer.
Peelor's mechanical barometer.
Beck's aneroid barometer.
Photographic barometer.
Clum's aelleograph.
Hough's electrical meteorograph, (barometer, thermometer, and hygrometer.)
Wild's hygrometer and thermometer.
Photographic thermometers.
Gibbon's electrical recording anemometer.
Gibbon's electrical recording anemometer and anemoscope.
Beck's mechanical recording anemometer and anemoscope.
Wild's mechanical anemometer, anemoscope, and rain-gauge.
Draper's mechanical anemometer for velocity.
Draper's mechanical anemometer for pressure.
Draper's mechanical anemoscope.
Draper's mechanical rain-gauge.
Beckley's mechanical rain-gauge.
Gibbon's electrical recording tide-gauge.
Dunwoody's electrical tide-gauge.

Two glass cases, in which are represented the different atmospheric phenomena, have been constructed by Private P. A. Monnet, Signal-Service, United States Army. Both cases contain specimens of clouds arranged in the style of a panorama. The smaller case gives only the principal outlines of the objects, and may be considered as a short synopsis of that branch of meteorology. The larger case is more particularly adapted for nephelegraphic studies, each type of cloud being therein exhibited in its most essential character, and surrounded with its principal derivatives. The broader forms and those above them are separate types; whereas the two lower strata, being the terrestrial range, correspond to combined meteors, viz: aqueous, aerial, and luminous. Some phenomena of the last class, like haze, auroras, coloration at sunrise and sunset, can be produced at pleasure by optical attachments external to the case. The chief object aimed at in both styles of representation is to trace the effects of atmospheric agencies on aqueous vapor.

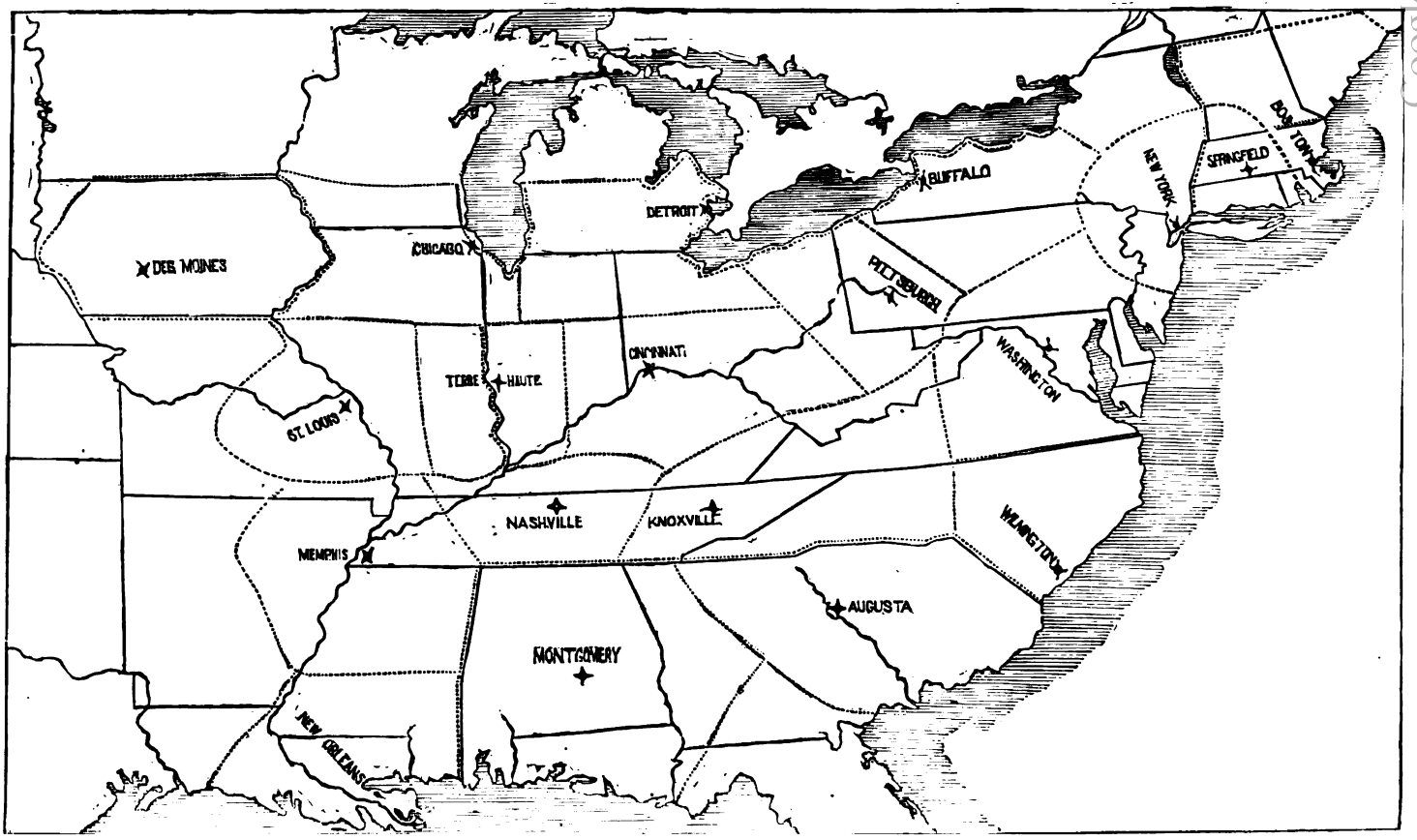
PAPER 21.

CORRESPONDENCE IN REFERENCE TO THE CO-OPERATION OF THE POST-OFFICE AND WAR DEPARTMENTS IN THE DISTRIBUTION OF WEATHER-REPORTS.

WAR DEPARTMENT, OFFICE OF THE CHIEF SIGNAL-OFFICER,
DIVISION OF TELEGRAMS AND REPORTS
FOR THE BENEFIT OF COMMERCE AND AGRICULTURE,
Washington, D. C., December 7, 1872

SIR: I have the honor to request that instructions may issue to the postmasters at the post-offices named in the accompanying list A, herewith, to display daily and instantly upon their receipt by mail, upon bulletin-boards, which will be furnished (if permitted by the Postmaster-General) from this office, the reports as to the probable condition of the weather in the sections in which these offices are located, which this office will furnish by mail daily in printed form, and addressed to the postmasters named respectively. Under section 6 of the act of Congress entitled "An act to revise, consolidate, and amend the statutes relating to the Post-Office Department," approved

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June 8, 1872, the request of the honorable Postmaster-General that this publication be made by the postmasters, or others in his service, as being for the public good, would clearly have the effect of an order; but should there be question on this point, there can be none that most of the postmasters interested would gladly perform the duty as for the public good, and one reflecting credit upon the Department in which they serve.

To the Postmaster-General himself, whose good-will to this Bureau has been so often and with such benefit to the Department evidenced, the Chief Signal-Officer does not feel it necessary to urge at length reasons for requesting his valuable co-operation. It is sufficient to say that the plan suggested seems to offer a more immediate and extensive method of reaching the whole interior and agricultural populations of the United States, with information in which each citizen has an interest, than any hitherto put in use in any country in the world.

Attention is respectfully invited to the accompanying memorandum of the plan of distribution.

I am, sir, very respectfully, your obedient servant,

ALBERT J. MYER,
Brigadier-General and Chief Signal-Officer of the Army.

The Hon. POSTMASTER-GENERAL.
(Through the Hon. Secretary of War.)

PLAN OF WORK.

It is proposed to divide the territory east of the Mississippi River into districts of bout two hundred miles in diameter, each district having a distributing point at or ear its center, from which two copies of the reports will be mailed daily to all postffices accessible by rail or mail-coach by 6 p. m. each day. At each office the postaster is to post one copy of each report, as soon as received, in a frame to be furnished by the Signal-Office, which frame will be put up in a conspicuous part of the ffice, where it can be seen and the bulletins read by the public without difficulty.

The second copy is intended for the personal use of the postmaster, and may be disosed of in the manner he thinks best calculated to diffuse the information it contains. he chart herewith illustrates the proposed form of districting.

MEMORANDUM.

The extent of the co-operation required of the Post-Office Department is the transission daily by mail of one additional letter to each post-office named in the schedules, id the putting up daily at such offices one copy of the bulletins furnished by the gnal-Office.

WAR DEPARTMENT,
Washington City, December 9, 1872.

SIR: I have the honor to inclose herewith a communication from the Chief Sigl-Officer of the Army, relative to distribution of the daily weather-reports, and to quest the co-operation of your Department in the mode indicated by him, if content with your views. The subject is one of public interest, and the plan appears pable of effecting a public good.

Very respectfully, your obedient servant,

WM. W. BELKNAP,
Secretary of War.

The Hon. POSTMASTER-GENERAL.

POST-OFFICE DEPARTMENT,
Washington, D. C., December 11, 1872.

SIR: I have the honor to acknowledge the receipt of your letter of the 9th instant losing a communication from the Chief Signal-Officer of the Army, with schedules l plans for the co-operation of the Post-Office and War Departments in distributing daily weather-reports throughout the agricultural districts of the United States essible by rail or mail-coach, by 6 p. m. each day, from certain designated distribng points.

heartily approve of the plan proposed by General Myer for extending to the agritural sections of the country the benefit of the information contained in the daily ather-reports from the Signal-Office, and have issued an order under date of 9th

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instant, a copy of which is inclosed herewith, instructing all postmasters receiving these reports by mail to post them immediately in the frames supplied for that purpose by the Signal-Office.

Any further assistance that may be desired from this Department will be most cheerfully given.

I am, very respectfully, your obedient servant,

JNO. A. J. CRESWELL,
Postmaster-General.

Hon. WM. W. BELKNAP,
Secretary of War.

POST-OFFICE DEPARTMENT,
Washington, D. C., December 10, 1872.

Arrangements have been made between the Post-Office and War Departments by which one or more of the daily weather-reports issued by the signal-office will be furnished daily to all the post-offices that can be reached from the several points of distribution daily by mail. As these reports are designed for the benefit of the agricultural as well as the commercial interests of the country, the Postmaster-General instructs all postmasters receiving them to post them *immediately* in the frames supplied for this purpose by the signal-office.

PAPER 22.

List of Agricultural Societies which, on September 30, 1873, *had appointed permanent committees to confer with the Chief Signal-Officer of the Army.*

Name of organization and State.	Committee.	Post-office address.
Monroe County Agricultural Society, Indiana.	T. H. Mallow	Bloomington, Ind.
Muskingum County Agricultural Society, Ohio.	R. S. Mershon	Zanesville, Ohio.
Louisville and Jefferson Counties Agricultural Society, Kentucky.	L. Young	Louisville, Ky.
Schuyler County Agricultural and Mechanical Society, Missouri.	John B. Glaze	Glenwood, Mo.
Highland County Agricultural Society, Ohio.	J. S. Bell	Hillsborough, Ohio.
	J. W. Ellis	
Arkansas State Agricultural and Mechanical Society, Arkansas.	Albert Cohen	Little Rock, Ark.
Bertie County Agricultural Society, North Carolina.	S. J. Wheeler	Windsor, N. C.
	J. B. Cheney	
	D. E. Tayloe	
Geauga County Agricultural Society, Ohio.	Dexter Witter	Burton, Ohio.
	George H. Ford	Do.
	Luther Russell	Do.
Otsego County Agricultural Society, New York.	G. Pomeroy Keese	Cooperstown, N. Y.
	H. M. Hooker	Do.
	Elisha Finney	Do.
Crawford County Agricultural Society, Pennsylvania.	A. P. Foster	Conneautville, Pa.
	Col. F. Manton	Do.
	Prof. W. H. Armstrong	Do.
Berrien County Agricultural Society, Michigan.	J. B. Fitzgerald	Niles, Mich.
	D. O. Woodruff	Do.
	William Bort	Do.
Greene County Agricultural Society, Missouri.	Dr. J. E. Tafft	Springfield, Mo.
	A. W. McPherson	Do.
	Rev. John E. Werth	Do.
Tolland County Agricultural Society, Connecticut.	George H. Kingsbury	Rockville, Conn.
	J. C. Hammond, jr	Do.

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List of Agricultural Societies which, on September 30, 1873, had appointed permanent committees to confer with the Chief Signal-Officer of the Army—Continued.

Name of organization and State.	Committee.	Post-office address.
Burlington County Agricultural Society, New Jersey.	G. C. Brown	Mount Holly, N. J.
	M. S. Pancoast	Do.
	James Lippincott	Do.
Agricultural and Mechanical Society of Western Alabama, Alabama.	W. S. Bird	Eutaw, Ala.
	H. G. Webb	Do.
	A. T. Lupton	Tuscaloosa, Ala.
Crawford County Agricultural Society, Ohio.	G. Keller	Bucyrus, Ohio.
	E. R. Reamley	
	H. M. Scroggs	
	Josiah Koller	
Saratoga County Agricultural Society, New York.	B. S. Robinson	Greenfield Centre, N. Y.
Martin County Agricultural Society, Minnesota.	H. A. Munger	Fairmount, Minn.
California State Board of Agriculture, California.	J. N. Hoag	Sacramento, Cal.
	C. F. Reed	Do.
	F. M. Logan	Do.
Macon County Fruit-Growers' Association, Illinois.	Prof. E. A. Gastman	Decatur, Ill.
	Theo. Hildebrandt	
	J. B. R. Sherrick	
Missouri State Board of Agriculture, Missouri.	John H. Tice	Saint Louis, Mo.
	Rev. Charles Peabody	Do.
	Hon. G. W. Kinney	Snow Hill, Mo.
Jackson County Agricultural Society, Ohio.	Davis Mackley	Jackson Court-House, O.
	J. E. Ferree	Do.
	Jacob Dungan	Do.
Pike County Agricultural Society, Georgia.	J. S. Pope	Zebulon, Ga.
	J. H. Mitchell	Do.
	H. Green	Do.
Greene County Agricultural Society, New York.	A. P. Jones	Catskill, N. Y.
	G. C. Mott	Do.
York County Agricultural Society, Pennsylvania.	John Evans	York, Pa.
	G. A. Heckert	Do.
	W. S. Roland	Do.
Allamakee County Agricultural Society, Iowa.	Hon. Charles Paulk	Waukon, Iowa.
	A. M. May	Do.
	D. W. Read	Do.
Bay State Horticultural Society of California, California.	F. A. Miller	San Francisco, Cal.
	Prof. H. N. Bolender	Do.
Maine Board of Agriculture, Maine.	M. C. Fernald	Orono, Me.
	Prof. G. L. Goodale	Bowdoin College, Brunswick, Me.
	Prof. C. E. Hamlin	Colby University, Waterville, Me.
	C. F. Brackett	Bowdoin College, Brunswick, Me.
	Hon. S. F. Perley	Naples, Me.
Muscola County Agricultural Society, Michigan.	C. C. Stoddard	Caro, Mich.
	Townsend North	Do.
	Dr. William Johnson	Do.
Central Iowa District Agricultural Association, Iowa.	P. F. Bartle	Des Moines, Iowa.
	M. W. Robinson	Do.
	D. V. Cate	Do.
South Carolina Agricultural and Mechanical Society, South Carolina.	Dr. F. P. Porcher	Charleston, S. C.
	Dr. T. T. Robertson	Winnsborough, S. C.
	Col. J. P. Thomas	Columbia, S. C.
Connecticut State Agricultural Society, Connecticut.	Hon. E. H. Hyde	Stafford, Conn.
	Hon. Thomas H. Butler	Norwalk, Conn.
	H. S. Collins	Collinsville, Conn.
Connecticut State Board of Agriculture, Connecticut.	Prof. W. H. Brewer	New Haven, Conn.
	W. H. Yeomans	Columbia, Conn.
	T. S. Gold	West Cornwall, Conn.

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List of Agricultural Societies which, on September 30, 1873, had appointed permanent committees to confer with the Chief Signal-Officer of the Army—Continued.

Name of organization and State.	Committee.	Post-office address.
Terre Haute Horticultural Society, Indiana.	J. D. Foote	Terre Haute, Ind.
	J. F. Saule	Do.
	John Weir	Do.
	Rev. — Stimson	Do.
	Joseph Gilbert	Do.
Middlesex County Farmers' Club, New Jersey.	G. H. Lambert	New Brunswick, N. J.
	G. W. Thompson	Do.
Farmers' Club, Utah	D. Tyler	Beaver City, Utah Ter.
	William Fotheringham	Do.
	J. L. Smith	Do.
Indiana State Board of Agriculture, Indiana.	T. C. Johnson	New Albany, Ind.
	Thomas Dowling	Terre Haute, Ind.
	J. D. G. Nelson	Fort Wayne, Ind.
Rhode Island Society for the Encouragement of Domestic Industry, Rhode Island.	Dr. J. W. Sawyer	Providence, R. I.
	J. T. Smith	Do.
	Dr. W. F. Channing	Do.
Washington County Agricultural Society, New York.	M. Ingalsbe	South Hartford, N. Y.
	R. W. Pratt	Do.
Farmers and Fruit-Growers' Association of Illinois, Illinois.	Dr. W. West	Belleville, Ill.
	F. H. Pieper	Do.
	E. W. West	Do.
Iowa State Horticultural Society, Iowa.	Prof. Charles E. Bessey	State Agricultural College, Ames, Iowa.
	Hon. John Scott	Nevada, Iowa.
	G. B. Brackett	Denmark, Iowa.
Addison County Agricultural Society, Vermont.	Prof. W. H. Parker	Middlebury College, Middlebury, Vt.
	Prof. H. M. Seely	Middlebury College, Middlebury, Vt.
	Prof. E. Brainerd	Middlebury College, Middlebury, Vt.
Orleans County Agricultural Society, Vermont.	D. M. Camp	Newport, Vt.
	T. H. Hackins	Do.
	Z. E. Jameson	Irasburgh, Vt.
Bradley County Agricultural and Mechanical Society, Tennessee.	T. L. Cate	Cleveland, Tenn.
	J. C. Morgan	Do.
	Dr. G. A. Long	Do.
Iowa State Agricultural Society, Iowa.	Peter Melendy	Cedar Falls, Iowa.
	S. B. Hewitt, jr	Eagle Grove, Iowa.
	J. M. Shaffer	Fairfield, Iowa.
Carroll and Choctaw Counties Agricultural Society, Mississippi.	A. M. Rafter	Winona, Miss.
	T. J. Blackmoore	Do.
	O. J. Moore	Do.
Belmont Farmers' Club, Mississippi	A. M. Rafter	Winona, Miss.
	W. W. Dabney	Do.
	Jas. Thompson	Do.
Broome County Agricultural Society, New York.	E. G. Crafts	Binghamton, N. Y.
	T. F. Roberts	Do.
	Arch. Stone	Do.
	P. Van Vredenberg	Do.
Bureau County Agricultural Society, Illinois.	George W. Stone	Princeton, Ill.
	A. Bryant, jr	Do.
	H. L. Baltwood	Do.
Essex County Agricultural Society, Massachusetts.	Charles P. Preston	Danvers, Mass.
	William Sutton	Salem, Mass.
	A. W. Dodge	Do.
Kokomo Horticultural Society, Indiana.	L. J. Templin	Kokomo, Ind.
	L. W. Leach	Do.
	C. S. Boggs	Do.
Jo. Daviess, La Fayette, and Stephenson Union Agricultural Society, Illinois.	A. M. Jones	Warren, Ill.

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List of Agricultural Societies which, on September 30, 1873, had appointed permanent committees to confer with the Chief Signal-Officer of the Army—Continued.

Name of organization and State.	Committee.	Post-office address.
Marshall County Agricultural Society, Iowa.	Byron Webster	Marshalltown, Iowa.
	John Turner	Do.
	S. P. Kinsley	Do.
Coles County Agricultural Society, Illinois.	D. C. M. Evans	Charleston, Ill.
	Charles Penatel	Do.
Rock County Agricultural Society, Wisconsin.	Dr. J. B. Whiting	Janesville, Wis.
Waupaca Agricultural and Mechanical Association, Wisconsin.	H. C. Mead	Waupaca, Wis.
	W. Scott	Do.
	E. Cooledge	Do.
ngham County Agricultural Society, Michigan.	Allen Rowe	Mason, Mich.
	A. M. Chapin	Eden, Mich.
	William Rayner	Mason, Mich.
Fillmore and Mower Counties Agricultural Society.	Dr. A. F. Whitman	Spring Valley, Minn.
	H. S. Hart	Do.
	W. L. Kellogg	Do.
	B. F. Farmer	Do.
	William McNee	Do.
	E. S. Bumstead	Do.
	George W. Farmer	Do.
	W. Allen	Do.
	D. Rathbun	Do.
arion County Agricultural Society, Ohio.	H. M. Ault	Marion, Ohio.
	H. A. True	Do.
	J. K. Newcomer	Do.
umphreys County Farmers' Club, Tennessee.	Rev. A. A. Wilson	Waverly, Tenn.
	T. U. Harris	Do.
	W. A. Hollinger	Do.
	A. R. Lankford	Johnsville, Tenn.
uzerne County Agricultural Society, Pennsylvania.	Steuben Jenkins	Wyoming, Pa.
	Rev. Abel Parker	Do.
	Dr. J. M. Lewis	Do.
	Dr. J. B. Crawford	Wilkesbarre, Pa.
	Dr. C. R. Gorman	Pittston, Pa.
	Dr. B. H. Throop	Scranton, Pa.
	Dr. R. H. Tubbs	Kingston, Pa.
lanta Union Central Agricultural Society, Illinois.	S. D. Fisher	Atlanta, Ill.
	William P. Hunt	Do.
	Daniel McFarland,	McLean, Ill.
oward County Agricultural Society, Iowa.	H. D. Noble	Cresco, Iowa.
	Stephen Rodford	Chester, Iowa.
	C. S. Thurber	Cresco, Iowa.
ıtagamie County Agricultural Society, Wisconsin.	W. H. P. Bogan	Appleton, Wis.
	Edwin Nye	Freedom, Wis.
	N. B. Clark	Ellington, Wis.
	Louis Perrott	Greenville, Wis.
wrence County Agricultural and Industrial Association, Ohio.	Dr. G. S. B. Hempstead	Hanging Rock, Ohio.
	Cyrus Ellison	Ironton, Ohio.
	Hiram Campbell	Do.
	H. W. Gillett	Quaker Bottom, Ohio.
	Samuel Burke	Arabia, Ohio.
ami County Agricultural Society, Ohio.	W. W. Crane	Tippecanoe City, Ohio.
chigan State Pomological Society, Michigan.	A. T. Linderman	Grand Rapids, Mich.
	C. L. Whitney	Muskegon, Mich.
	Edward Bradfield	Ada, Mich.
moille County Agricultural Society, Vermont.	George Wilkins	Stowe, Vt.
	H. H. Powers	Morrisville, Vt.
	G. L. Waterman	Hyde Park, Vt.
heboygan County German Agricultural and Trades Association, Wisconsin.	Ferd. Stoesser	Sheboygan, Wis.
	Frederick Must	Do.
	Fred. Zimmerman	Do.
	Albert Mohlendorf	Do.
	Thomas Blackstock	Do.

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List of Agricultural Societies which, on September 30, 1873, had appointed permanent committees to confer with the Chief Signal-Officer of the Army—Continued.

Name of organization and State.	Committee.	Post-office address.
Walworth County Agricultural Society, Wisconsin.	Peter Golder	Elk Horn, Wis.
	David Williams	Darien, Wis.
	Charles E. Buhre	Geneva, Wis.
Floyd County Agricultural Society, Iowa.	E. C. Chapin	Charles City, Iowa.
Edgar County Agricultural Society, Illinois.	Walter Booth	Paris, Ill.
	B. Halcomb	Do.
	D. P. Elliott	Do.
Perry County Agricultural and Mechanical Association, Indiana.	I. F. Patterson	Rome, Ind.
	I. I. Wheeler	Do.
	Ad. Ackerman	Do.
Davis County Agricultural Society, Iowa.	Howard Willey	Bloomfield, Iowa.
	Wm. J. Hamilton	Do.
	T. A. Walker	Do.
	A. Rankin	Belknap, Iowa.
	William Hill	Bloomfield, Iowa.
Utah County Agricultural and Home Manufacturing Society, Utah.	Hon. George Bean	Provo, Utah.
	C. D. Evans	Springville, Utah.
	Daniel Graves	Provo, Utah.
Ontario County Agricultural Society, New York.	Cooper Sayre	Oak's Corners, N. Y.
	John S. Coe	Canandaigua, N. Y.
Washington County Agricultural and Mechanical Association, Virginia.	Rev. George R. Barr	Abingdon, Va.
	J. L. White	Do.
	Thomas Cosby	Do.
Otoe County Agricultural Society, Nebraska.	J. W. Pearman	Nebraska City, Nebr.
	W. W. Wardell	Do.
Lake County Agricultural Society, Ohio.	D. W. Mead	Painesville, Ohio.
	C. C. Jennings	Do.
	George Blish	Do.
Page County Agricultural Society, Iowa.	S. H. Kiddlebaugh	Clorinda, Iowa.
	S. W. Peterson	Do.
	J. L. Barrett	Do.
Kings Creek Valley Farmers' Club, Ohio.	Thomas Cowgill	Kennard, Ohio.
Cerro Gordo County Agricultural Society, Iowa.	George R. Miller	Mason City, Iowa.
	T. G. Emsley	Do.
	A. Wilson	Owen's Grove, Iowa
	Henry Martin	Mason City, Iowa.
	C. W. Tenney	Plymouth, Iowa.
Northumberland County Agricultural Society, Pennsylvania.	Dr. E. H. Horner	Turbotville, Pa.
	William A. Dean	Do.
	Thomas Barr	Do.
Johnson County Agricultural and Mechanical Association, Kansas.	John M. Giffen	Olathe, Kans.
	Henry McBride	Do.
	J. M. Hadley	Do.
Albany County Agricultural and Industrial Society, New York.	Hon. Geo. A. Tweddle	Albany, N. Y.
	J. Winne	Bethlehem Centre, N. Y.
	J. H. Farrell	Albany, N. Y.
Pike County Agricultural Society, Mississippi.	D. M. Pound	Magnolia, Miss.
Warren County Agricultural Society, New York.	Charles W. Osborn	Warrensburgh, N. Y.
Shenandoah Valley Agricultural Society, Virginia.	Edmund Pendleton	Winchester, Va.
	Dr. W. J. Best	Brucetown, Va.
	J. C. Baker	Winchester, Va.
	Jarvis Jennings	Millwood, Va.
	Edwin S. Baker	Winchester, Va.
Wabaunsee County Central Agricultural and Horticultural Society, Kansas.	William Coleman	Eskridge, Kans.
	William Rinehart	Do.
	George Reynolds	Do.
Oswego County Agricultural Society, New York.	Henry L. Davis	Oswego, N. Y.
	P. M. Newton	Sandy Creek, N. Y.
	Hiram Walker	Union Square, N. Y.
	Thomas H. Austin	New Haven, N. Y.
	Harry Palmer	Paris, N. Y.

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ist of Agricultural Societies which, on September 30, 1873, had appointed permanent committees to confer with the Chief Signal-Officer of the Army—Continued.

Name of organization and State.	Committee.	Post-office address.
nnessee Central Fair Association, Tennessee.	W. P. Henderson.....	Murfreesboro', Tenn.
rsey County Agricultural Society, Illinois.	Dr. J. O. Hamilton	Jerseyville, Ill.
	George H. Jackson	Do.
	William Shephard	Do.
euben County Agricultural Society, New York.	R. E. Robie	Bath, N. Y.
atonwan County Agricultural Society, Minnesota.	W. W. Murphy.....	Madelia, Minn.
ultrie County Agricultural and Horticultural Society, Illinois.	G. W. Vaughan	Sullivan, Ill.
	E. W. Mills	Do.
me Agricultural and Mechanical Fair Association, Georgia.	Thomas J. Perry.....	Rome, Ga.
	Thomas W. Alexander..	Do.
est Virginia Central Agricultural and Mechanical Society, Virginia.	Lee Haymond	Clarksburgh, W. Va.
	R. T. Lownder	Do.
	Thomas S. Spates	Do.
	Dr. W. M. Late.....	Bridgeport, W. Va.
	Henry Bassell	Brown's Creek, W. Va.
ll County Agricultural Society, eorgia.	Dr. M. F. Stephenson ...	Gainesville, Ga.
	J. E. Redwine.....	Do.
rtage County Agricultural Society, Ohio.	H. Y. Beebe	
	E. R. Wait.....	
	John Meharg	
ckasaw County Agricultural ociety, Iowa.	L. J. Young	Chickasaw, Ohio.
	H. M. Mixer	New Hampton, Iowa.
	Buel Sherman	Fredericksburgh, Iowa.
ginia State Agricultural Society, irginia.	F. G. Ruffin.....	Richmond, Va.
	Col. William C. Knight.	Do.
	Dr. Wm. T. Walker....	Dover Mines, Goochland, Va.
icultural and Mechanical Societ- of Alleghany County, of Maryand and West Virginia, and ennsylvania.	Charles C. Shriver	Cumberland, Md.
	J. B. H. Campbell	Do.
	R. L. Gross	Do.
tral Farmers' Club, Delaware.	M. Hayes	
	J. H. Bateman	
	C. H. B. Day	
ison County Agricultural Society, Indiana.	I. R. Holston	Anderson, Ind.
	William Crim	Do.
	James Hazlitt	Do.
	M. G. Walker	Pendleton, Ind.
	N. G. Tomlinson.....	Alexandria, Ind.
	Thomas Beckworth....	Perkinsville, Ind.
vention of pomologists, Michin.	Henry S. Clubb.....	Grand Haven, Mich.
	Samuel B. Peck.....	Muskegon, Mich.
	C. L. Whiting.....	Do.
Pomological and Horticultral Society of Michigan, Michin.	W. K. Kedzie	Lansing, Mich.
mpaign County Agricultural ciety, Ohio.	W. A. Humes	Urbana, Ohio.
anan County Agricultural Soty, Iowa.	Lyman J. Curtis	Independence, Iowa.
	Dr. George Worne.....	Do.
	Jed. Lake	Do.
Hampshire State Agricultural ciety, New Hampshire.	Hon. Samuel N. Bell....	Manchester, N. H.
	Hon. Frederick Smyth .	Do.
	General Nathaniel Head	Hooksett, N. H.
blic County Agricultural Soy, Kansas.	O. A. A. Gardner.....	Bellville, Kans.
estown Farmers' Club, Pennvania.	T. W. Trego	Doylestown, Pa.
	H. T. Darlington.....	Do.
	D. E. Brower.....	Do.

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List of Agricultural Societies which, on September 30, 1873, had appointed permanent committees to confer with the Chief Signal-Officer of the Army—Continued.

Name of organization and State.	Committee.	Post-office address.
Franklin County Agricultural Society, Maine.	D. H. Knowlton	Farmington, Me.
	L. F. Green	East Wilton, Me.
	P. P. Tufts	Farmington, Me.
Oxford County Agricultural Society, Maine.	Howard D. Smith	Norway, Me.
	A. C. T. Smith	South Paris, Me.
Iowa County Agricultural Society, Iowa.	J. Root, jr	Marengo, Iowa.
	J. C. Clark	Foote, Iowa.
	A. H. Simpson	Victor, Iowa.
Ephrata Agricultural and Scientific Society, Pennsylvania.	W. H. Spera	Ephrata, Pa.
Warsaw Horticultural Society, Illinois.	B. Whitaker	Warsaw, Ill.
	J. W. Hollowbush	Do.
	Charles Hay	Do.
State Grange of Patrons of Husbandry, South Carolina.	John B. Moore	Edgefield, S. C.
	D. W. Aiken	Cokesbury, S. C.
	Benjamin Allston	Georgetown, S. C.

PAPER 23.

List of Boards of Trade, Chambers of Commerce, and other organizations, apart from those directly connected with agriculture, which had on September 30, 1873, appointed permanent committees to confer with the Chief Signal-Officer of the Army.

Name of organization.	State.	Committee.
Chamber of Commerce of New York.	New York	George W. Dow, M. Maury, J. D. Jones, Charles G. Curtis.
Board of Trade of Buffalo	New York	Alonzo Richmond, Geo. S. Hazard, John H. Vaught.
Board of Underwriters of New York.	New York	John D. Jones, Daniel Drake Smith, Ellwood Walter, Alfred Ogden.
Board of Trade of Toledo	Ohio	W. T. Walker, M. D. Carrington, A. W. Colter, C. A. King.
Board of Trade of Washington	District of Columbia.	J. W. Thompson, A. S. Solomons, R. M. Hall.
Board of Trade of Detroit	Michigan	J. Aspinwall, G. W. Bissell, E. W. Hudson.
Board of Trade of Chicago	Illinois	C. Randolph, D. H. Dexter, E. T. Lawrence.
Board of Trade of Boston	Massachusetts	Robert S. Perkins, M. D. Ross, John Cummings, E. H. Sampson.
Chamber of Commerce of Milwaukee.	Wisconsin	John L. Hathaway, J. B. Merrill, L. R. Durand.
Board of Trade of Nashville	Tennessee	James Whitworth, R. T. Kirkpatrick, Dr. W. W. Berry, E. D. Hicks, M. S. Cochrill.
Chamber of Commerce of Du Luth.	Minnesota	Charles M. Cushman.
Board of Trade of Baltimore	Maryland	H. L. Whitridge, Robert E. Kirkland, Benjamin M. Hodges, jr., J. H. Pleasants.
Board of Trade of New London	Connecticut	James T. Skinner, George P. Rogers.
Board of Trade of San Francisco	California	R. R. Swain, J. De Frees, R. G. Sneath, C. A. Low
Board of Trade of Cleveland	Ohio	R. K. Winslow, R. F. Lyon, J. C. Sage.

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List of Boards of Trade, Chambers of Commerce, &c.—Continued.

Name of organization.	State.	Committee.
Chamber of Commerce of Charleston.	South Carolina	E. H. Frost, W. P. Hall, T. W. Dawson.
Board of Trade of Charleston	South Carolina	Hon. George A. Trenholm, Professor F. S. Holme, E. Lafitte.
Chamber of Commerce of Memphis	Tennessee	B. J. Semmes, H. H. Higbee, Thomas H. Allen.
Board of Trade of Oswego	New York	A. H. Failing, W. J. Malcolm.
Board of Trade of Omaha	Nebraska	A. D. Jones, G. H. Collins, M. Stephens, Col. J. Patrick, C. C. Housel.
Committee appointed by mayor of Rochester.	New York	Joshua A. Eaton, Charles A. Poole, Geo. Schofield.
Board of Trade of Portland	Maine	C. H. Farley, J. S. Bedlow, M. N. Rich.
Board of Trade at Philadelphia	Pennsylvania	Henry Winsor, Thomas C. Hand, Thomas L. Gillespie, George N. Fotham, George N. Allen, James Hand.
Board of Trade of Mobile	Alabama	J. M. Thompson, J. Y. Thompson, Daniel Jones.
Chamber of Commerce of Savannah.	Georgia	Charles Green, president; Robert N. Gourdon, vice-president.
Chamber of Commerce of Wilmington.	North Carolina	A. H. Van Bokkelen, Geo. Harriss, W. L. DeRossett.
Board of Trade of Norfolk	Virginia	Dr. S. K. Jackson, W. A. Graves, E. C. Lindsay.
Board of Trade of Indianapolis	Indiana	D. M. Berry, E. F. Cox, John E. Wright, W. R. Nofsinger, S. T. Bowen.
Chamber of Commerce of Saint Paul.	Minnesota	R. Ormsby Sweeney, Rev. J. Mattocks, J. Fletcher Williams.
Board of Trade of Burlington	Vermont	G. G. Benedict, Prof. Peter Collier, Prof. McK. Petty.
Union Merchants' Exchange of Saint Louis.	Missouri	Geo. P. Plant, R. P. Taney, W. H. Scudder.
Chamber of Commerce of Galveston.	Texas	J. S. Thrasher, W. Richardson, C. G. Forshey.
Board of Trade of Shreveport	Louisiana	George Williamson, R. D. Sale, George A. Pike.
Chamber of Commerce of San Diego.	California	Douglass Gunn, C. A. Jones, J. S. Gordon.
Philadelphia County Medical Society.	Pennsylvania	Lawrence Turnbull.
Board of Trade of Davenport	Iowa	James M. Dalzell, Edward Russell, F. A. Angel.
Board of Trade of Jacksonville	Florida	A. S. Baldwin.
Chamber of Commerce of Indianola.	Texas	G. Seeligson, W. P. Milby, D. Sullivan.
Board of Trade of La Crosse	Wisconsin	Wm. W. Jones, James J. Lyndes, S. L. Nevins.
Cotton Exchange of New Orleans	Louisiana	John J. Noble, Cyrus Bussey, Thomas Henderson.
Chamber of Commerce of New Haven.	Connecticut	Johnson T. Platt, Mayor Lewis, E. S. Wheeler.
Chamber of Commerce of Cairo	Illinois	W. P. Halliday, Charles M. Howe, Peter Cuhl.
Board of Trade of Cincinnati	Ohio	Daniel B. Pierson.
Board of Trade of Dubuque	Iowa	Dr. Asa Horr, Franklin Hinds, R. J. Gibbs.

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PAPER 24.—(Form 31.)

WAR DEPARTMENT, OFFICE OF THE CHIEF SIGNAL-OFFICER,

DIVISION OF TELEGRAMS AND REPORTS FOR THE BENEFIT OF COMMERCE AND AGRICULTURE.

Report of observations on temperature of water at ——— for the week ending Saturday, ———, 187-.

Day and date.	Time of observation.	Temperature of air.	Temperature of water at surface.	Temperature of water at bottom.	Depth of water.	Remarks.
Sunday...						
Monday ..						
Tuesday..						
Wed'sday.						
Thursday.						
Friday ...						
Saturday .						

——— ———, *Observer.*

NOTE.—Two copies of this form will be forwarded weekly to the Chief Signal-Officer, Washington, D. C.

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WAR DEPARTMENT, OFFICE OF THE CHIEF SIGNAL-OFFICER,

ISION OF TELEGRAMS AND REPORTS FOR THE BENEFIT OF COMMERCE AND AGRICULTURE.

rt of observations on temperature of water at ——— for the week ending Saturday, ———, 187–.

and te.	Time of observation.	Temperature of air.	Temperature of water at surface.	Temperature of water at bottom.	Depth of water.	Remarks.
y.....						
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y						
day.						
y...						
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——— ———, *Observer.*

Two copies of this form will be forwarded weekly to the Chief Signal-Officer, on, D. C.

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PAPER 25.

List of places for which stations have been requested, but not established on September 30, 1873

Place.	Applicant.	Date.
Muskegon, Mich	Hon. H. H. Holt, Michigan legislature, inclosing petition of 99 citizens.	Jan. 21, 1871
	Board of Trade, Toledo	Jan. 27, 1871
	Board of Trade, Chicago	Feb. 10, 1871
	Hon. T. W. Ferry, U. S. Senate	Mar. 3, 1871
Manitowoc, Wis	Hon. P. Sawyer, M. C.	Jan. 25, 1871
Huron City, Mich	Board of Trade, Toledo	Jan. 27, 1871
	Board of Trade, Cleveland	Feb. 19, 1871
	Board of Trade, Detroit	Feb. 19, 1871
Mackinac, Mich	Board of Trade, Chicago	Feb. 10, 1871
Richmond, Va	W. G. Turpin	Apr. 3, 1871
Cape Henry, Va Body Island, N. C Cape Hatteras, N. C	Board of Trade, Norfolk, Va., and resolution of the general assembly of Virginia.	Apr. 17, 1871
Lewes, Del	Board of Trade, Philadelphia	May 25, 1871
Park's, Colo	E. J. Mallett, late consul-general	May 24, 1871
Staten Island	C. Keutgen, jr	June 9, 1871
Chambersburgh, Pa	Hon. John Scott, U. S. Senate	June 12, 1871
	Hon. Simon Cameron, U. S. Senate	June 12, 1871
Watertown, N. Y	L. L. Pratt	June 21, 1871
Xenia, Ohio	C. E. Case	June 30, 1871
Port Hope	Board of Trade, Detroit, Mich	July 22, 1871
Illinois Industrial University, Champaign, Ill.	Hon. W. C. Flagg, secretary	July 21, 1871
	Hon. J. M. Gregory, president	Feb. 21, 1872
Little Rock, Ark	Hon. J. M. Hawks, M. C	July 26, 1871
	Albert Cohen	July 1, 1872
Sacramento, Cal	J. N. Hong, secretary California State Board of Agriculture.	July 26, 1871
	Concurrent resolution of the legislature of California, presented by Dr. T. M. Logan, secretary State board of health.	May 15, 1871
Niles, Mich	J. B. Fitzgerald, secretary Berrien County Agricultural Society.	Jan. 10, 1871
Hot Springs, Ark	J. H. Morton, M. D	July 27, 1871
Louisiana, Mo	William Stark	Aug. 2, 1871
	R. E. Pleasants	Aug. 3, 1871
Janesville, Wis	J. B. Whiting, M. D	Aug. 7, 1871
	Rock County Agricultural Society	
Hillsdale, Mich	Professor George M. Millen, secretary Hillsdale College.	Aug. 6, 1871
	Hillsdale County Agricultural Society	Aug. 6, 1871
Metamora, Ill	Edward Kipp, secretary Woodford County Agricultural Society.	Aug. 8, 1871
Marietta, Ohio	J. W. Andrews, president Marietta College.	Aug. 10, 1871
	Washington County Agricultural Society	Aug. 10, 1871
Mount Pleasant Academy, Pennsylvania.	W. H. McCrey, Mount Pleasant Academy and Normal School.	Aug. 11, 1871
Nebraska City, Neb	H. K. Raymond, secretary Otoe County Farmers' Club.	Aug. 14, 1871
Mount Moosilauke, N. H	Professor C. H. Hitchcock	Aug. 16, 1871
	A. F. Clough	Aug. 16, 1871
Catasauqua, Pa	Hon. E. McPherson, Clerk U. S. House of Representatives.	Sept. 11, 1871
Galena, Ill	Dr. Wilmot Scott, editor Galena Commercial Advertiser.	Sept. 14, 1871
Columbus, Nebr	J. O. Shannon, secretary Platte County Agricultural Society.	Sept. 5, 1871
Farther Point Canada, Coburg, Canada Collingwood, Canada	Oswego Board of Trade, by J. L. McWhorter.	Aug. [illegible]

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List of places for which stations have been requested, &c.—Continued.

Place.	Applicant.	Date.
ngfield, Mo	John E. Worth, for Greene County Agricultural and Mechanical Society.	Sept. 18, 1871.
Huron, Mich	Board of Trade, Buffalo	Sept. 22, 1871.
on City, Iowa	T. G. Emsley, secretary Cerro Gordo County Agricultural Society.	Oct. 6, 1871.
io, Me	M. C. Fernald, Maine State College of Agriculture.	Oct. 19, 1871.
ze, La Morgan, Ala o, Tex	Agent and captains of Morgan Steamship Company.	Oct. 31, 1871.
Randall, Dak	R. J. Percy, for Missouri Valley Telegraph Company.	Nov. 9, 1871.
ersity of Michigan, Ann rbor.	Professor G. B. Merriman	Nov. 28, 1871.
Garry, Manitoba	N. McDougall	Dec. 2, 1871.
itain, Colo	R. F. Song, editor El Paso Ranchman	Dec. 4, 1871.
gor, Me	C. A. Boutelle, editor Whig and Courier	Dec. 14, 1871.
yard Haven, Mass	Professor J. E. Hilgard, United States Coast Survey. Daniel W. Stevens Rev. Thos. Hill	Dec. 18, 1871.
port, Rhode Island	Hon. H. B. Anthony, U. S. Senate, forwarding memorial of 29 citizens. Capt. S. A. Day, United States Army	Dec. 8, 1871. July 26, 1872.
Ann, Mass	Hon. B. F. Butler, M. C	Dec. 19, 1871.
City, Iowa	John P. Irish	Dec. 14, 1871.
ssas, Va	George C. Round	Dec. 27, 1871.
cy, Ill	H. A. Hill, secretary National Board of Trade.	Jan. 4, 1872.
r Point, N. H	John B. Stivens, mayor	Jan. 13, 1872.
ington, Del	Board of Trade	Jan. 24, 1872.
ional stations on east- n shore of Lake Michgan.	Hon. H. H. Holt, Michigan legislature	Feb. 11, 1871.
ional stations on ountains of Virginia.	G. C. Wedderburn, secretary Virginia Telegraph Company. L. A. Gobright, Associated Press	May 7, 1871.
ional stations on west- slope of Mississippi lley.	George P. Plant W. H. Scudder R. P. Fansey, committee of Merchants' Exchange, Saint Louis, Mo.	May 7, 1871. July 16, 1871.
oe Light, Monomoy nt, Cape Cod, Mass.	B. B. Forbes, recommended by Hon. James Buffinton, M. C.	Nov. 29, 1871.
vest Pass, Pass à l'Outre	Thornton A. Jenkins, Rear-Admiral U. S. Navy.	Mar. 20, 1871.
on, Va.; Christiangh, Va.; Bristol, n.; Easton, Pa.; risburgh, Pa.; Winster, Va.	Jed. Hotchkiss	Aug. 15, 1871.
da, Kans	M. D. Ellis	Feb. 12, 1872.
Dome, Black Mount- N. C.	William Cain	Feb. 12, 1872.
te, N. Y	J. Eaton, and thirty-five others	Feb. 14, 1872.
n, Altoona, on Pennania Central Rail-	David Peelor	Feb. 17, 1872.
ity of Minnesota, neapolis.	William W. Folwell, president	Feb. 21, 1872.
f the State agricul- l colleges.	J. B. Bowman, regent Kentucky University, and others.	Feb. 29, 1872.
us, Ohio	J. H. Klippart, secretary of Ohio State Board of Agriculture.	Mar. 5, 1872.

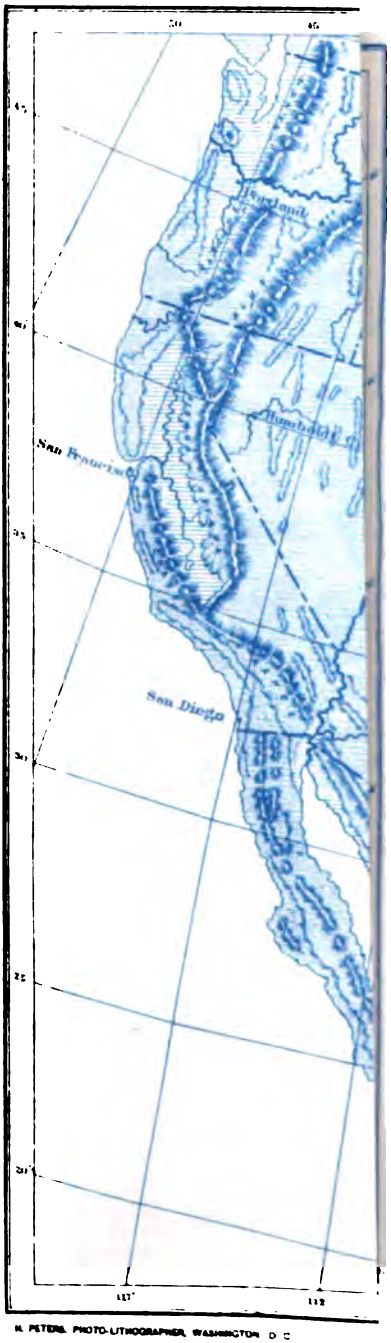
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List of places for which stations have been requested, &c.—Continued.

Place.	Applicant.	Date.
Norwich University, Northfield, Vt.	Capt. C. A. Curtis	Mar. 15, 1872
Grand Tower, Ill	A. R. Harris	Mar. 21, 1872
Iuka, Miss	Rev. J. T. Freeman, through Hon. George E. Harris, M. C.	Mar. 25, 1872
Great Natihalee, Bald Mountain, N. C.	Charles W. Jenks	Apr. 1, 1872
Deposit, N. Y	G. W. Hanford	Apr. 1, 1872
Heilman Dale	S. P. Heilman	Apr. 1, 1872
Booneville, Mo	J. L. Stephens	Apr. 11, 1872
Fort Wayne, Ind	F. C. Johnson, Indiana State Board of Agriculture.	Apr. 12, 1872
New Albany, Ind		
Maryland Agricultural College.	A. R. Davis, president board of trustees.	Apr. 19, 1872
San Antonio, Tex	Thomas G. Williams	May 10, 1872
Atlanta, Ga	Hon. John H. James, mayor	May 10, 1872
Auburn, Ala.; Agricultural and Mechanical College of Alabama.	William C. Stubbs John B. Reed W. H. Jenison	May 14, 1872
Racine, Wis	Mayor and council	May 15, 1872
Ogdensburgh, N. Y	Hon. W. A. Wheeler, M. C	May 25, 1872
Plattsburgh, N. Y	Hon. John Rogers, M. C	May 25, 1872
Sewanee, Tenn	John L. Cooper, through Professor Joseph Henry, Smithsonian Institution.	June 10, 1872
Newark College, Delaware	William D. Mackey, secretary	June 11, 1872
Green Bay, Wis	Hon. P. Sawyer, M. C	June 13, 1872
Kenosha, Wis	Wallace Mygatt	June 20, 1872
Warsaw, Ind	Marshall H. Parks	June 24, 1872
Beaver City, Utah	Daniel Tyler	July 5, 1872
New Ulm, Minn	Dr. Alfred Miller	July 10, 1872
Evansville, Ind	F. C. Johnson P. Hornbrook, surveyor of customs Thomas P. Britton, president Vanderburgh County Agricultural Society. John Ingle, secretary Vanderburgh County Agricultural Society. Charles, Butterfield, Mayor	July 11, 1872
Aiken, S. C	Hon. F. A. Sawyer, U. S. Senate, and sixteen citizens. John C. Derby	July 16, 1872 Sept. 2, 1872
Winona, Miss	A. M. Rafter	July 20, 1872
Eutaw, Ala	W. S. Bird	July 9, 1872
Belfast, Me	George E. Brackett	Aug. 6, 1872
Ithica, N. Y., Cornell University.	A. D. White, president, petition of seventy-five citizens.	Aug. 5, 1872
Straits of Mackinac	Roys I. Cram	Aug. 7, 1872
Carthage, Ill	L. F. M. Easterday, petition of one hundred and five citizens.	Sept. 2, 1872
Kutztown, Pa	A. R. Hornel, principal Keystone State Normal School.	Sept. 11, 1872
Pensacola, Fla	Pensacola Ice Company M. H. Sullivan, and 29 others	Oct. 7, 1872
Gainesville, Ga	M. F. Stephenson	Nov. 7, 1872
Chattanooga and some point between Leavenworth and Shreveport.	Steamboat-men's convention assembled at Cairo.	Nov. 12, 1872
Dallas, Tex	W. A. Jones & Co W. C. Connor, and one hundred and thirty-three others.	Dec. 5, 1872
On plains of Western Kansas, and regions southward and southwestward.	Kansas State Horticultural Society	Dec. 7, 1872

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List of places for which stations have been requested, &c.—Continued.

Place.	Applicant.	Date.
City and Parker's Landing, on the Allegheny River. ensborough and Brownsville, on the Monongahela.	Resolution of select council of Pittsburgh, transmitting and approving petition of 46 citizens of Pittsburgh.	Dec. 28, 1872. Jan. 10, 1873.
iversity of Kansas, Lawrence.	John Fraser, chancellor	Jan. 16, 1873.
nchester, N. H	Hon. S. N. Bell, M. C., inclosing resolution of New Hampshire State Agricultural Society.	Jan. 21, 1873.
idwich, Ill	N. E. Ballou, through Commissioner of Agriculture.	Jan. 22, 1873.
troit, Minn	Daniel Coney	Feb. 2, 1873.
yton, Ohio	Isaac Strohen	Feb. 11, 1873.
atka, Fla	J. F. Starr, through Secretary of the Navy.	Feb. 17, 1873.
-in-Bay, Ohio	H. B. West	Mar. 3, 1873.
	H. D. Cooke, governor of the District of Columbia.	July 17, 1873.
poria, Kans	Robert Milliken	Mar. 6, 1873.
th and west of Galveston, Tex.	Chamber of Commerce, through John Hancock.	Mar. 6, 1873.
arlotteville, Va., University of Virginia.	R. T. W. Duke, M. C	Mar. 2, 1873.
eigh, N. C	Cotton Exchange, New Orleans, La	Mar. 30, 1873.
mbia, S. C	Mayor of city and city council	June 11, 1873.
mbus, Miss	Cotton Exchange, New Orleans, La	Mar. 30, 1873.
ce City, Mo	E. P. Lingee	Apr. 9, 1873.
hanic, N. J	John V. D. Pumyea	Apr. 12, 1873.
City, Mich	N. B. Bradley, M. C	Apr. 27, 1873.
cennes, Ind	W. Hays	June 15, 1873.
ngfield, Ill	S. M. Cullom, petition of governor, State officers, &c.	July 5, 1873.
ar Keys, Fla	Albert E. Willard, mayor, and 16 others.	July 7, 1873.
na, Kans	Freeman Kingman	July 17, 1873.
ghanies	George W. Warren, jr	July 26, 1873.
hage, Mo	E. P. Searle, Henry C. Henney, C. C. Allen, and others.	Aug 15, 1873.
berne, N. C	George W. Nasson, jr	Sept. 13, 1873.
Townsend, Wash. Ter	Puget Sound Telegraph	Sept. 30, 1873.

PAPER 26.

MONTHLY WEATHER-REVIEW, OCTOBER, 1872.

STORMS.

e progress over the country of thirteen storm-centers has, during the month, been d upon the War Department weather-maps, Signal Service, United States Army. most severe of these storms was that which, from the 21st to the 27th, traveled the Gulf northeastward over the South Atlantic and Middle States, and thence ard over southern New England into the Atlantic, attended throughout its course avy rains and brisk to high winds, increasing at times to gales. These rains particularly heavy in Northeastern Florida and Southeastern Virginia, over 6 s of water falling during the storm at Jacksonville, and nearly 7¼ inches at Nor-

Of the remainder of these disturbances nine pursued an irregular eastward e from the northwest over the lake region into Canada or New York or New Eng- to Brunswick or Nova Scotia; one moved from Texas eastward into the Gulf, e it disappeared; one nearly northward from off Cape Cod across Maine to New swick, and one from Kansas and Nebraska eastward over the Ohio Valley to Vir-

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RAIN-FALL.

The returns from the signal-service stations show that an excess of rain over the mean for the month has fallen on the Atlantic coast, except in Maine and Southeastern Connecticut, and throughout the Middle States and lower lake region, excepting western Lake Erie. This surplus amounts to 4.32 inches at Jacksonville, Fla., 4.01 at Rochester, and 7.07 at Norfolk, but is less at other stations in the sections, varying from 1 to 2 inches. A slight excess has also fallen in the western portions of Tennessee and Minnesota, and eastern parts of Nebraska and Kansas. There has been a deficiency of about an inch in northern New England, interior portions of South Carolina and Georgia and throughout the Gulf States, excepting Florida, while in Central and Eastern Tennessee, Western Kentucky, the Upper Mississippi Valley and over the upper lake region the figures show a general deficiency of about 2 inches. The precipitation has been very slight at the Rocky Mountain stations and on the Pacific coast, apparently less than the mean for October.

TEMPERATURE.

The mean temperatures for this month show but little variation from the means for October at most of the signal-service stations. At the Rocky Mountains, on the Pacific, and western Gulf coasts, in Eastern Iowa and Southern Wisconsin, and throughout the Atlantic States, from Florida to Rhode Island, temperatures slightly cooler than usual have been experienced, the variation below the mean for the month being greatest at Milwaukee and on the coast of Georgia and the Carolinas where it amounts to about 3°. In all other sections the temperature has been slightly above the mean for October. The month has, however, been much cooler than October, 1871, everywhere in the Mississippi Valley and eastward, this difference of the mean temperature being greatest in Florida, Georgia, and from the Ohio Valley to the lower lakes and southern portion of the upper lake region, amounting in these sections to from 3°

MONTHLY WEATHER-REVIEW, NOVEMBER, 1872.

STORMS.

During this month twenty-four storm-centers have traversed various parts of the country east of the Rocky Mountains. Fifteen of these disturbances have pursued an irregular eastward course from the northwest over the lake region to Canada, or crossing the Saint Lawrence Valley, have traveled eastward over Maine and New Brunswick; two have moved from the Upper Mississippi Valley eastward to Virginia, and thence along the coast to New England; four have crossed the country diagonally from the southwest to New England and the eastern British provinces; one from Texas across the northern portion of the Gulf to Florida; and two, which were probably central at a distance from the coast, have been felt along the Atlantic sea-board.

Destructive gales have attended the progress of many of these storm-centers, particularly over the upper lake region, in the Saint Lawrence Valley, and on the middle and east Atlantic coasts. Their approach has, however, been heralded by the display during the month of sixty-eight cautionary-signals at the lake stations — fourteen on the Atlantic coast and six on the Gulf.

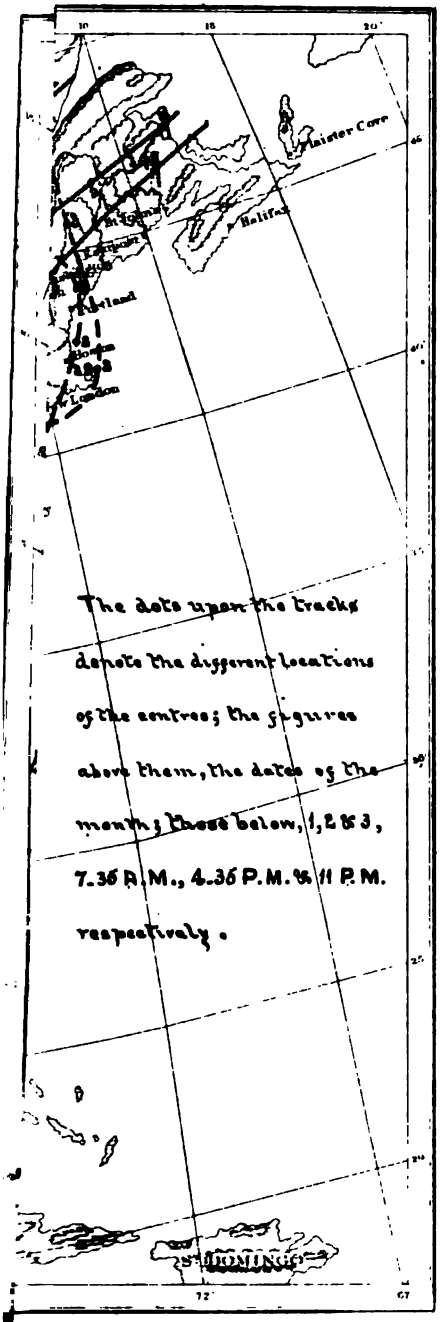
RAIN-FALL.

Notwithstanding the number of storms which have visited the country during the month, the returns from the signal-service stations show that the precipitation has been generally less than the mean for November at the Rocky Mountain stations, Florida, the Southwest, (except Southeastern Texas and Southern Louisiana,) the Northwest, the Ohio Valley, and throughout the lake region. The figures show this deficiency to be greatest over the section of country extending from Kansas eastward to Kentucky and Ohio, averaging about 2 inches, but amounting to over 4 inches in Central Iowa. An excess of rain has fallen in the Carolinas, Georgia, Eastern Tennessee, Central Alabama, Southern Louisiana, and Southeastern Texas, while about the average quantities are reported from the Middle and Eastern States, except the western portions of Pennsylvania and New York, where the amounts are below the mean.

TEMPERATURE.

The mean temperatures for the month at the various signal-service stations show that the month has been colder than usual everywhere from the Atlantic to the Rocky Mountains, excepting, perhaps, in Montana. Areas of high barometric pressure attended by low temperatures for the season, have, in several instances, followed closely after the storm-centers, causing cold "northers" in the Southern States, and severe cold, westerly gales over the Northwest and upper lake region. The variation

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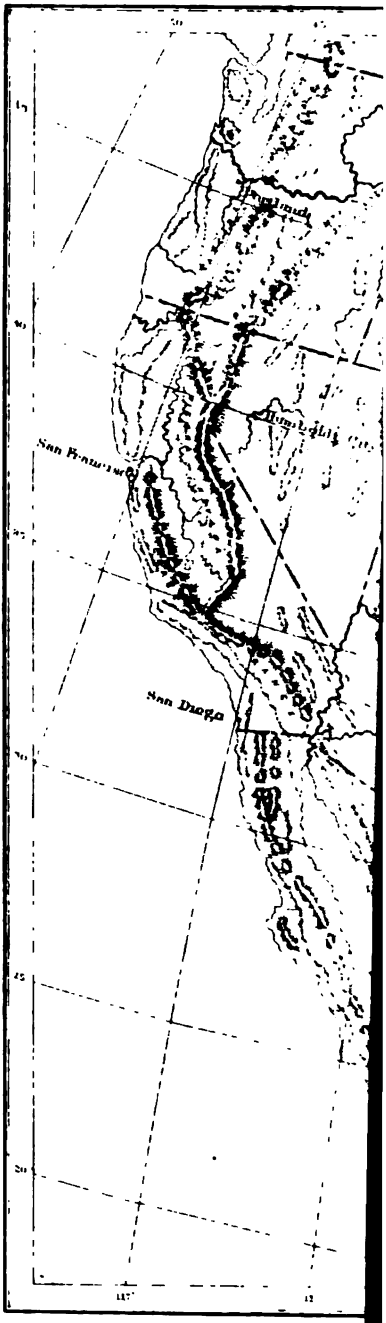


The dots upon the tracks denote the different locations of the centres; the figures above them, the dates of the month; those below, 1, 2 & 3, 7.36 A.M., 4.36 P.M. & 11 P.M. respectively.

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ure below the mean for November has, consequently, been greatest in amounting to from 3° to 8°. Compared with November of last year lower ave prevailed everywhere east of the Rocky Mountains, except in New York, New Jersey, and Eastern Pennsylvania. Thus the mean temperature the same for November, 1871, by 3°.1 at New London, 3°.3 at Portland, t Burlington, Vt., but lower by 5°.1 at Savannah, 7°.4 at Jacksonville, obile, 7°.6 at Cincinnati, 4° at Saint Paul, and 4°.8 at Escanaba, Mich.

MONTHLY WEATHER-REVIEW, DECEMBER, 1872,

STORMS.

month no less than twenty-seven storm-centers have been traced in their various parts of the country upon the War Department weather-maps, United States Army. Two of these storms have apparently traveled the country from the Pacific coast, but the paths of the remainder are d to the country east of the Rocky Mountains, and are about equally en the two favorite winter-routes of these disturbances, the one from the tward over the lake region and northern New England to the eastern ces, and the other from the southwest northeastward to the Middle w England, or eastward along the Gulf coast, thence following the trend c coast northeastward toward Nova Scotia. The usual attending high les of the winter storms have been experienced in nearly all parts of the their approach has been announced by the display of forty-two cautionary- lake ports, thirty-two on the Atlantic coast, and three on the Gulf.

RAIN-FALL.

s from the signal-service stations show that an excess of rain, amounting 5 inches above the mean rain-falls for December, has, during the month, xas, Louisiana, and Western Mississippi. A surplus, varying from 1.12 9 inches, has also fallen in Southern Virginia, North Carolina, Eastern nterior portions of South Carolina and Georgia, and in Northeastern all other sections east of the Rocky Mountains (excepting at New London, eavenworth, and Breckenridge, which exhibit amounts slightly above the gures show that the fall of rain and snow has been less than the average r. This deficiency is comparatively small for New England, the Middle ower lake region, but is large in Western Tennessee, the Ohio and Upper alleys, and over the country adjacent to Lakes Michigan and Superior, the having been scarcely one-fourth as much as the average for the month ions in these sections.

TEMPERATURE.

temperatures for the month at the signal-service stations compared with the ratures for December, as ascertained by a long series of observations, show th has been much colder than usual everywhere east of the Rocky Mount- xcess of cold amounts to from 5° to 7° at stations in all parts of the coun- Chicago, Milwaukee, Leavenworth, Breckenridge, and Rochester it amounts Much colder weather has prevailed than in December, 1871, in all sections erritories, except from Virginia to Southern New Jersey, and from Nebraska llinois, where the temperatures have been about the same. This unusually her may be attributed to the large number of areas of high barometer, or heric waves, which, with their attending low temperatures, have rolled ountry from west to east. No less than fifteen of these areas of high press- en traced upon the weather-maps for this month, while during the corre- onth last year only nine made their appearance.

MONTHLY WEATHER-REVIEW, JANUARY, 1873.

STORMS.

he past month the progress of twelve storm-centers has been traced on the ps of the signal-service. Of these, three have crossed the country in a rd direction from Texas to New England and the British provinces; five

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have moved from the extreme northwest eastward over the lakes into Cana
England; one from Manitoba over Lake Superior into Canada; two northea
the Atlantic coast to the Eastern States and Nova Scotia or Canada; and on
gressed eastward through the Gulf States, and thence northeastward up the
Of these storms the most severe have been that of the 7th and 8th in
west, and that which from the 21st to the 24th crossed the country from Tex
Scotia. The westerly winds closely following the center of the former in
strong gales, which, with heavy snow and temperatures far below zero, served
it one of the most terrific which has visited that section for many years.
(that of the 21st) was very extensive in its effects, as during its course nearly
country east of the Rocky Mountains was reached by its rain or snow-belts.
easterly gales were felt with most severity from Lake Michigan to Lake Erie,
snows fell from Kansas and Missouri northeastward to Canada.
Twenty-four cautionary-signals were displayed during the month at poi
middle and east Atlantic coasts, and two on the Gulf coast.

RAIN-FALL.

The monthly rain-fall returns for January from the signal-service stations
there has been in general a deficiency on the Pacific coast; but east of the Rock
ains an excess of rain and snow. This latter excess is most decided in Miss
Jersey, and Connecticut. A small region of deficiency also appears to ex
Kentucky, Tennessee, Mississippi, and Alabama

TEMPERATURE.

The mean temperatures for January, as given by the signal-service reports,
over the country east of the Rocky Mountains the weather has been genera
than usual. This difference is greatest in the northwestern section, being in
and Northern Ohio about 6° below the mean temperature for the month, and
consin and Minnesota to Kansas ranging from 7° to 12° lower than usual. In
Mississippi Valley, and also Northwestern New York, the average temperat
been from 5° to 6° lower than might have been anticipated, while this diff
New England and throughout the Middle States generally has been from 2°
the South Atlantic States about the mean temperatures have prevailed, except
ern Florida, where they are shown to be somewhat lower, as also in the Gulf

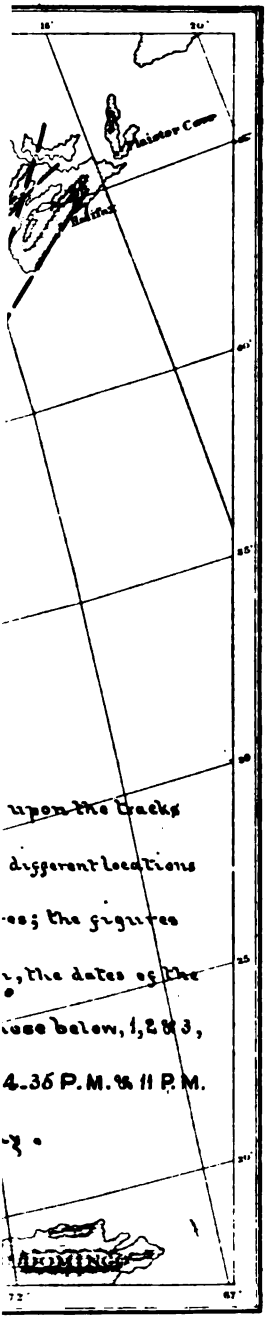
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MONTHLY WEATHER-REVIEW, FEBRUARY, 1873.

STORMS.

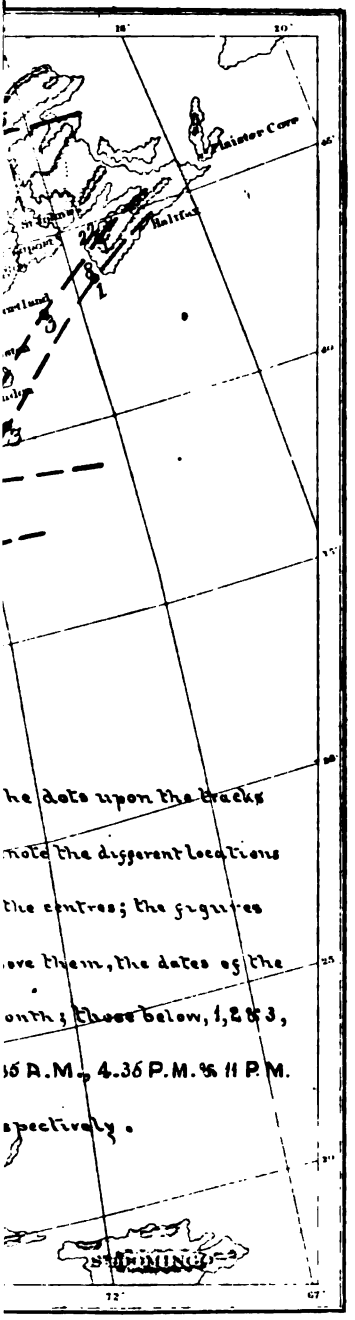
During this month ten different storms have crossed portions of the countr
the Rocky Mountains. The paths of their centers have, approximately, bee
upon the War Department weather-maps, Signal Service, United States Army
That of February 3d and 4th passed over Nebraska, Iowa, Wisconsin, and
into Canada, accompanied by rain, at places heavy, from Texas to Iowa and
to the middle Atlantic coast, but by generally light snow or rain thence n
over New England and the lakes, and by brisk and high winds over the lak
westerly winds being most severe; thunder-storm reported from Knoxville, 4
February 5, 6, 7, and 8.—Over Gulf and South Atlantic States and thence north
off the middle and east Atlantic coasts and over Nova Scotia, accompanied
rain to Massachusetts, and by fresh and brisk winds over Gulf coast, and
high over Atlantic coast, easterly to northerly winds most severe.
February 6 and 7.—Eastward over Northern Minnesota and Lake Superior into
accompanied by areas of very light snow and brisk and high winds over the lak
southwesterly to northwesterly being most severe.
February 9, 10, and 11.—Eastward from Dakota over Minnesota, Wisconsin, an
gan into Canada, accompanied by generally light rain or snow from Misso
nessee, and Virginia northward and northeastward, and by brisk and hig
southeasterly to southwesterly being most severe.
February 11 and 12.—Northeastward over Southern States and beyond middle
coast, accompanied by heavy rain from Kentucky to Southern New Jersey an
ward to Gulf, but snow from Ohio to lower lakes and Connecticut, and by
high southerly to westerly winds over western Gulf coast, brisk and high so
erly over South Atlantic States, and brisk and high easterly to northerly from
to Massachusetts; thunder-storm reported from Knoxville, 12th; storm very
from Cape Cod southward.
February 15, 16, and 17.—Northeastward from Texas over the Ohio Valley; the
ward over and beyond middle Atlantic coast, accompanied by rain, generall

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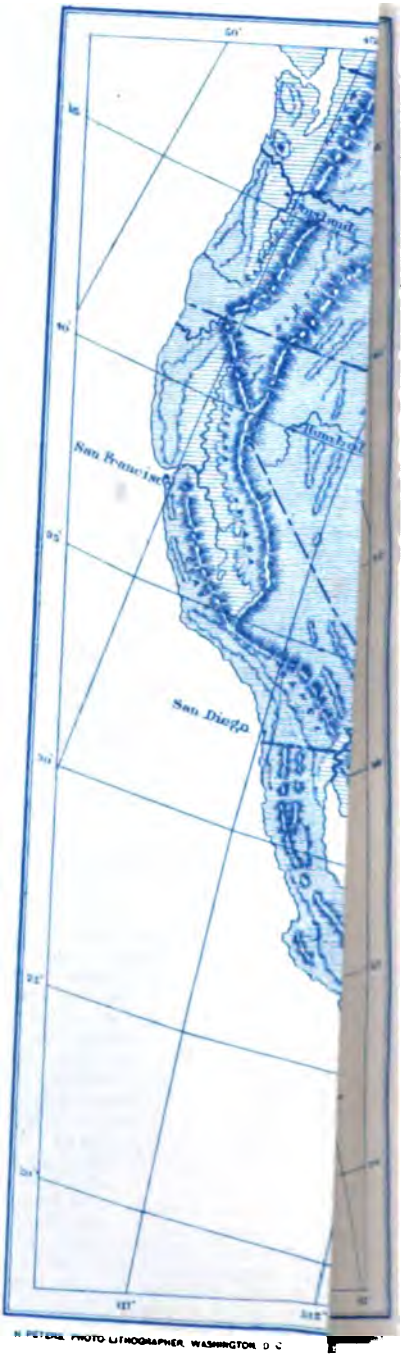
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onnecticut and southward to Gulf, but areas of light rain and snow
rd to Maine and the lakes, and by brisk and high winds over western
ic coasts; severe thunder-storm reported from Memphis on 15th.
nd 18.—Northeastward from Dakota over Minnesota and Lake Supe-
r, accompanied by light rain and snow and by brisk and high winds,
temperature.
nd 21.—One over the Southern States, and thence northeast along the
h and brisk southerly winds over west Gulf, veering to high northerly;
over south Atlantic coast, and brisk and high northeasterly to north-
middle and east Atlantic coasts; other northeastward over Missouri;
chigan into Canada with brisk and high winds; the two accompanied
ver the country east of the Rocky Mountains, except snow from Iowa
astward over the Lake region and Northern New England.
nd 27.—From Nebraska and Missouri northeastward over Michigan into
anied by brisk and high winds; at the same time a diminished pressure
ward over Gulf and South Atlantic States, and thence northeast off
Atlantic coasts with brisk and high winds; the two accompanied by
ari to Northern Louisiana and eastward to Virginia and south Atlantic
w thence northward over Northwest, lakes, and Southern New England.
autionary-signals were displayed at the signal-service stations on the
d two on the Gulf.

RAIN-FALL.

ith the means of a number of years for the month, the rain-fall returns
ervice stations show a deficiency over the lake region, Northwest,
hern Georgia and South Carolina, New York, and Northern New En-
ess from the northern portions of Alabama, Georgia, and South Caro-
, Southern Indiana and Ohio, Pennsylvania and Southern New Jersey,
ed over Tennessee, also an excess over Rhode Island and Eastern
d Connecticut.

TEMPERATURE.

n temperature for the month, taken from the signal-service reports
th that for a number of years at the same stations, or close by, it is
former has been somewhat higher over the Gulf States, eastern por-
y and Tennessee, and southern portions of Ohio and Indiana, by from
erwise east of the Rocky Mountains lower by from 1° to 8°, being
New York, Michigan, Wisconsin, and Minnesota.

MONTHLY WEATHER-REVIEW, MARCH, 1873.

STORMS.

onth eleven storms have crossed portions of the country east of the
. The paths of their centers have approximately been traced upon
ent weather-maps, Signal Service, United States Army.
hat of March 1, 2, 3, and 4, passed from Texas over the Gulf States as
ure on the 1st and 2d, accompanied by heavy rains and brisk winds,
o high northerly along the Texas coast on the 1st and 2d; thence
ng the Atlantic coast, followed by brisk and high northerly to west-
outh Atlantic and Middle States, but brisk and high northeasterly,
esterly over east Atlantic coast, and accompanied by heavy rain over
ic States, but by generally light snow over the Middle and Eastern
llowed on the 2d and 3d by very cold weather and brisk and high north-
om the northwest and upper lakes to the Gulf, which, on the 3d and
ward over the Atlantic coast; on the 3d, thermometer readings from
elow zero were reported from Minnesota.
3.—Nearly due east over Dakota, Minnesota, and Upper Michigan into
by rain and brisk to high easterly and southerly winds from the
Valley and Tennessee to the lakes and northern portions of the Mid-
tates; followed by occasional snow over the lakes and Minnesota,
igh westerly winds from the Missouri Valley eastward over the Mid-
ates, increasing to gales over the lakes.
0.—From Southern Dakota, a little south of east over Iowa, Illinois,
diminished pressure, accompanied by fresh and brisk winds only;
er Ohio, Pennsylvania, and beyond Cape Cod increasing in severity,
h winds and generally light rain or snow from Tennessee and North
nd thence to Maine.

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March 10 and 11.—From Dakota over Minnesota and Lake Superior into Can... continuing north of the Saint Lawrence Valley; preceded by brisk and high ea... southerly winds, and followed by brisk and high westerly to northerly winds; ... panied by areas of light rain or snow from Missouri to Minnesota and Lakes ... and Huron, but thence eastward over the Middle and Eastern States becoming ... and at places heavy.

March 14, 15, and 16.—Eastward from Nebraska and Southern Dakota over ... region and apparently the eastern British provinces; accompanied by rain fro... ern Louisiana to New England and north of this line to the lakes and northw... ceded by brisk to high easterly and southerly winds, and followed by brisk a... northerly to westerly, increasing at places to gales.

March 17 and 18.—Eastward over Wisconsin, the lakes, New York, and New E... accompanied by brisk winds and rain, generally light, from Tennessee and ... northwest, north, and northeastward.

March 18, 19, 20, and 21.—Eastward over Dakota to lower Michigan appare... diminished pressure, but then developing into two; one passing over Virg... thence northeastward along the coast; the other north of the lower lakes and ... northern portion of New England; accompanied by rain and snow over th... country east of the Rocky Mountains, also by brisk and high winds, the easterly ... probably been the most severe, increasing to gales.

March 22 and 23.—From Dakota over the upper lakes into Canada, and the... Northern Maine, accompanied by occasionally light snow and brisk winds ... places increased to northeast gales.

March 23, 24, 25, 56, and 27.—Northeastward over the Ohio Valley, and de... into two; one over the lower lakes, down the Saint Lawrence Valley, the other ... middle and east Atlantic coasts and New Brunswick; accompanied by heavy ... the entire country east of the Rocky Mountains, except that from Northern N... land westward over the lakes to the northwest it was snow, and by brisk a... winds, which at places increased to gales, the north and west having been mos... except at Quebec, where a very severe northeast gale prevailed on the afternoo... 26th; this storm was followed by a severe "norther" in Texas on the 25th.

March 28, 29, and 30.—From Southern Dakota eastward over the lakes, New ... and New England; accompanied by areas of light rain or snow over the northw... upper lakes, but by rain, generally very heavy, from the Lower Mississippi ... Valleys and lower lakes to the Atlantic coast, also by brisk and high winds; on ... sage over the Middle and Eastern States it increased in severity, and the ... southerly gales on the coast, shifting later to northwest; it has undoubtedly b... most severe storm of the month, and the barometric depression most remarka... lowest reading having been 28.80 inches at Burlington, Vt., 11 p. m. on the 29t...

March 30 and 31.—Over the northwest lakes and New England; accompan... generally very light rain or snow from the northwest eastward over the lake... Ohio Valley, and Middle and New England States, and by brisk winds, increa... casionally to high.

During the month ninety-five cautionary-signals were displayed at the signa... stations on the Atlantic coast and five on the Gulf.

RAIN-FALL.

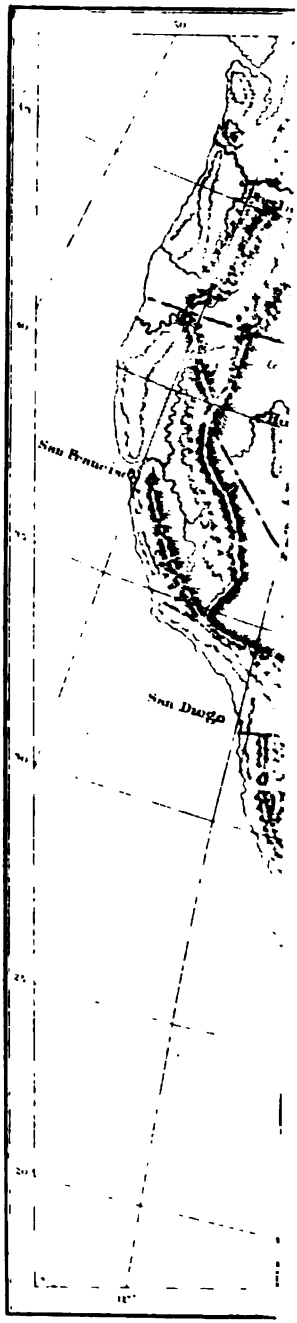
As compared with the means of a number of years for the month, the rain-fa... from the signal-service stations show a general deficiency at the stations eas... Rocky Mountains and at San Francisco, from 0.05 to 4.00 inches, except over the... ern portion of New England, northern and western portions of the Middle ... Southeastern Louisiana, Jacksonville, Florida, and Eastern Tennessee and ... where the excess varies from 0.10 to 4.86 inches.

TEMPERATURE.

The mean temperature for the month, as taken from the signal-service repor... stations east of the Rocky Mountains is higher, from 1° to 10°, than the same for ... except for Jacksonville and Key West, Fla., which is slightly lower, at lat... By comparing same of this year with that for a number of years at the same ... or at others close by, it is observed that the former is from 1° to 5° lower ... Southern, Middle, and New England States, Ohio and southern portions of M... Illinois and Missouri, but northwest of this region to Minnesota, Iowa, and N... it varies from 4° above to 5° below. During the month the weather has therefo... generally colder than usual, but warmer than March of last year, except in Utah ... it has been somewhat colder this than last, and at San Francisco, where there ... parently not been any change.

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MONTHLY WEATHER-REVIEW, APRIL, 1873.

STORMS.

nonth seven storms have been felt over a portion, or nearly the whole, ast of the Rocky Mountains. The paths of their centers have, approxi- ıced upon the War Department weather-maps, Signal Service, United

that of April 1 and 2 passed over Missouri, Illinois, and Michigan into ; out a minor disturbance over the middle Atlantic coast, accompanied ı winds and heavy rain in all the States east of the Rocky Mountains, as partly snow and sleet over northern New England, the lake region, est; it was felt as a very severe storm from northern Texas to the west.

, and 7.—Over Nebraska, Iowa, Missouri, Illinois, and lower Michigan ompanied by brisk and occasionally high winds, and sending out several ces to the eastward; also by rain-areas, generally light, from the Mis- Valleys and east and middle Atlantic coasts to the lakes and Saint y, except over the lake region, where it was partly snow.

nd 10.—Over Texas, Arkansas, Illinois, and Lake Michigan into Can- ; a branch over the Ohio Valley, middle Atlantic coast and to the south l, both accompanied by brisk and high winds; also by rain, generally as to Minnesota and eastward to the Atlantic coast, except that it was r the upper lakes and northwest; it was followed by a severe "norther" 8th.

2, and 13.—Over the northwest, and developed into two; one passing akes into Canada, accompanied by brisk and occasionally high winds ow from Missouri and Kentucky to the lakes; the other over the Ohio le Atlantic coast, and thence slowly northeastward, preceded by severe les, rain, sleet, and snow from Chesapeake Bay to Nova Scotia, New the lower Saint Lawrence Valley.

5, 16, 17, 18, and 19.—Eastward over Wyoming, Nebraska, and Kan- l Missouri; then diminishing in intensity and breaking up into, and the eastward over the lower lakes, several minor disturbances, and iddle Atlantic coast, moving thence very slowly on the 17th, 18th, and ew England coast to Nova Scotia and New Brunswick as quite a severe companied by rain, generally heavy, over the entire country east of tains, except that it was partly snow over northern New England, the the northwest; on the 12th, 13th, 14th, and 15th it was felt as a very se- n, sleet, and snow in Wyoming, Dakota, Nebraska, and Minnesota, on d night of the 14th and morning of the 15th as a very severe "norther" f the Mississippi numerous minor disturbances were left, producing w.

nd 23.—Southeastward over Dakota, the Lower Missouri and Lower l beyond the Carolinas; attended by fresh to very brisk winds, and by y light rain or snow from Missouri, Tennessee, and North Carolina to kes, and Massachusetts, and followed by a severe "norther" in Indian 22d, and in Texas on the 23d and 24th.

id 29.—Over Indian Territory to Kentucky, then apparently develop- appearing to the eastward as several minor disturbances; accom- nd brisk winds and rain from the interior of the Gulf States to the husetts, which was generally heavy over the interior and along the

RAIN-FALL.

the month from the signal-service stations show that there has been and snow over southern New England, the lower lake region, from hern Michigan to Kansas, Iowa, and Southern Minnesota, and over and Southeastern Georgia, varying from 0.65 inch to 3.06 inches, being is and Missouri. Elsewhere east of the Rocky Mountains there has of from 0.07 inch to 3.87 inches, being most marked in the western

TEMPERATURE.

nth the weather has been generally colder than usual east of the , and colder than April of last year at the Rocky Mountain stations and ean temperature for the month, taken from the signal-service reports, h that for a number of years at the same stations, or others close by, nsas and Missouri to Minnesota, 3° to 8°; in the Middle States and o 5°.7; in New England and from Kentucky to the Gulf, 0.5° to 3°; ı Atlantic States it varies a little above and below.

ared with that of last year is lower at the Rocky Mountain stations, astward, 0.5° to 8°; the difference being greatest over the Northwest ates.

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MONTHLY WEATHER-REVIEW, MAY, 1873.

STORMS.

During this month ten storms have traversed the country east of the Rocky Mountains. The accompanying map shows the paths of their centers:

I. *May* 1, 2, and 3.—Apparently originating on the last day of April in the Rocky Mountains, the center of this storm progressed eastward over Kansas, Missouri, Northern Indiana, Southern Michigan, and Lake Erie, moving thence southeastward over Pennsylvania and Maryland to the Atlantic, sending out a branch on the 2d over Ohio, Virginia, Chesapeake Bay, and thence off the coast. Its passage was attended by heavy rains and brisk and high winds from the Mississippi to the Atlantic, sleet and snow falling in New England.

II. *May* 4 to 8.—Appearing first in Southern Texas, this storm moved slowly northeastward over Arkansas, Missouri, Illinois, Southern Michigan, and Lake Huron. The highest winds during its passage were experienced on the coast of Texas, the lower lakes, and the middle Atlantic coast.

III. *May* 8 and 9.—Developed among the mountains of North Carolina and moved northeastward along the middle Atlantic coast, accompanied by heavy rains and high winds.

IV. *May* 8, 9, and 10.—Appeared first in Kansas and moved eastward over Missouri, and thence rapidly northeastward over Illinois, Indiana, Michigan, and southern Lake Huron into Canada. Heavy rains fell in Northern Illinois and Eastern Iowa, and a belt of lighter rains and brisk winds, from four hundred miles to eight hundred miles in width, attended its progress.

V. *May* 10, 11, and 12.—Like III, this storm seemed to develop among the mountains of North Carolina, passing northeastward over Virginia, eastward over Chesapeake Bay, and again northeastward along the coast to New Brunswick.

VI. *May* 12 and 13.—Traveled from Minnesota very rapidly eastward over the lakes, Saint Lawrence Valley and northern New England to Nova Scotia, causing light rains and high winds throughout its course.

VII. *May* 13, 14, and 15.—From the plains of Kansas and Indian Territory this storm-center moved eastward over Southern Missouri, southeastward into Alabama, and then again eastward off the coast, rapidly diminishing in intensity after crossing the Mississippi. Considerable rain fell in all the Southern States, except Texas, but no dangerous winds were reported.

VIII. *May* 18, 19, and 20.—Developing in the southwestern plains this depression traveled rather slowly northeastward from the Indian Territory over Lakes Michigan and Huron into Canada, attended by rain-belts and fresh to brisk winds throughout the lake region and western and northwestern sections of the country.

IX. *May* 21 to 24.—From Montana this disturbance moved slowly eastward over Dakota, crossing, with somewhat increased velocity, Minnesota, the upper lakes, the Saint Lawrence Valley, Maine, and Nova Scotia, causing, by its slow progress, several days of cloudy and rainy weather over the entire northern portion of the country. It was during its passage over the Northwest that the terrible and destructive tornado swept through Iowa.

X. Two depressions, one slowly descending from the Upper Missouri Valley, the other moving northward over Kansas and Nebraska, seemed to unite in Southern Dakota to form this storm-center. From Dakota it moved southeastward into Iowa, northeastward to Lake Superior, and thence nearly due east over the Saint Lawrence Valley, Maine, and New Brunswick. Its rain-belts reached nearly the whole country east of the Mississippi, and brisk winds, increasing occasionally to high, were experienced throughout the northern sections.

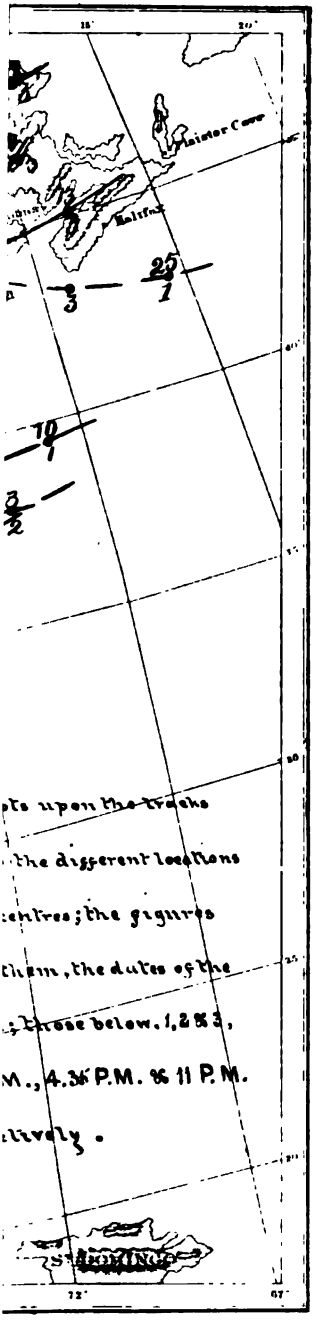
TEMPERATURE.

The temperatures for the last month were generally lower than for May, 1872, the chief exceptions being Key West, Oswego, and Grand Haven. As compared with the mean May temperatures of a series of years, the thermometric figures for May, 1873, show excess of warmth over northern Lake Michigan, Northern Michigan, Lake Huron, Southern Ohio, Kentucky, Tennessee, and Eastern Massachusetts, but a deficiency of temperature in Kansas, Missouri, Iowa, Minnesota, Wisconsin, Indiana, Illinois and the Gulf States, Florida, and Southeastern Georgia, and generally throughout the Atlantic States and the lower lake region. The regions of minimum rain-fall and thermometric maxima nearly correspond.

RAIN-FALL.

As compared with the mean May rain-falls, the rain-fall returns of last May show deficiencies in the northern and western parts of Lake Superior, Lake Michigan, and in the entire country stretching from the Saint Lawrence Valley to Maine, and thence over the lower lakes, Western New York, and Western Pennsylvania, West Virginia,

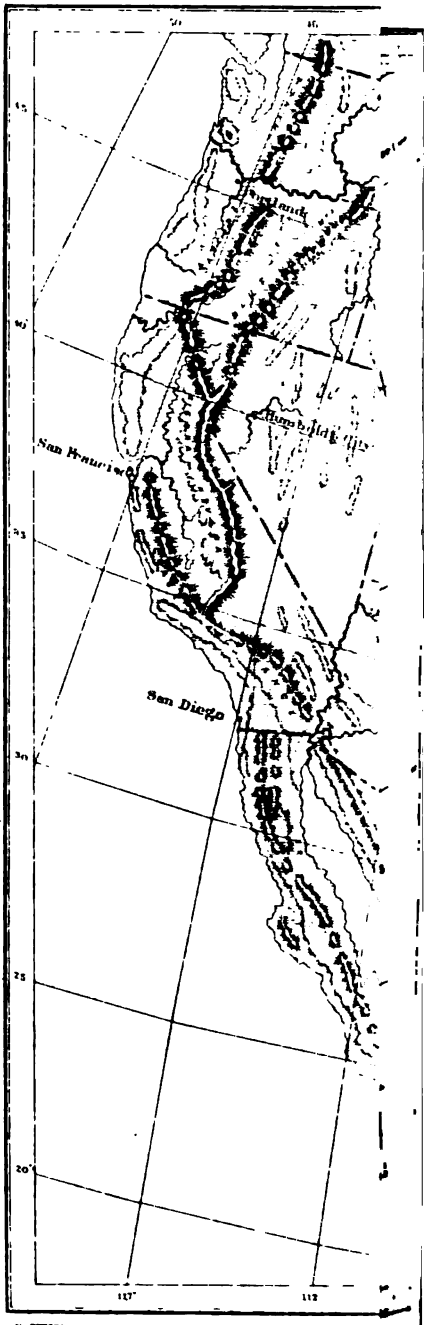
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ral Indiana, and Southeastern Illinois. Excess of rain occurred in Iowa, Mis-
ern Kansas, East Tennessee, and also along the Atlantic sea-board, except
and, Me., and Savannah, Ga., and a very great excess, from 2.00 to 14.58
r the Gulf States.

RIVERS.

r reports for the month show a slight decline in the Red and Missouri Rivers
eginning to the middle of the month, after which a decided rise occurs until
The Arkansas rose slowly at Little Rock until the 23d, after which it subsided
he Mississippi has alternately risen and fallen; at Saint Paul the water was
r on the 19th than on the 31st, at which dates, respectively, it was lowest
t; at Saint Louis the lowest and highest extremes occurred, respectively,
and 31st, the difference being 6 feet and 3 inches. At Cairo the river
t on the 28th and highest on the 16th, the extremes being about 13 feet.
is the difference between the highest and lowest water for the month has
9 feet, having been highest on the 22d and lowest on the 28th. A very
occurred on the Cumberland at Nashville from the 1st to the 4th, after which
radually subsided until the 21st, rising again until the 27th, and then again
il the 31st.
) was affected by a great swell which traveled from Pittsburgh on the 4th
lle on the 14th; since then it has fallen almost uninterruptedly. The differ-
en the highest and lowest water has been 15 feet at Pittsburgh, 19 feet at
3 at Cincinnati, 7½ at Louisville, and 16½ at Evansville.
cations are that the Missouri and its tributaries will continue to rise.

MONTHLY WEATHER-REVIEW, JUNE, 1873.

STORMS.

his month ten disturbances have crossed portions of the country east of the
ntains. The accompanying map shows, approximately, the paths of their
he figures above them are the dates of the month; those below, 1, 2, and 3,
spectively the time of the morning, afternoon, and midnight observations;
on them show the location of the centers at each observation.
ter of that of June 1 and 2 moved over Eastern Florida into Southern
d disappeared, producing heavy rains and brisk winds.
d 4.—From Dakota over Iowa, Lake Michigan, lower lakes, New York, and
nd; accompanied by fresh and brisk winds over the Northwest, lakes, and
ates, and by rain, at places heavy, east of the Rocky Mountains, except on
ast.
9, 10, and 11.—From Dakota over Minnesota, the lake region, and northern
nd; with rain, generally heavy, fresh and brisk winds, and occasionally
der-storms, over the northern portion of the country.
13, 14, and 15.—One southeastward over Minnesota to Lake Erie, and thence
nto Canada, causing thunder-storms, with rain-areas, generally light, and
ccasionally brisk winds from the Ohio Valley to the lakes; a second, appa-
loping in the Southern States, thence eastward to the coast and northeast-
robably Nova Scotia, with fresh and brisk winds and rain-areas on the coast.
5, 16, and 17.—Over Dakota, Lake Superior, and thence probably over
ucing areas of light rain and fresh and brisk winds over the northern portion
le States and the lake region.
9, and 20.—Over Northern Minnesota, Lake Superior, and thence over Maine
cotia, attended by occasional rain-areas and brisk and high winds over the
lake region, and New England.
2, 23, and 24.—From Dakota over Southern Minnesota to Iowa, then break-
and sending out to the eastward several minor disturbances, producing
der-storms of short duration from Missouri and the Ohio Valley northward.
6, 27, and 28.—Eastward over Northern Dakota, Minnesota, Lake Superior,
n New England, sending a branch over Iowa, with severe thunder-storms
see to the Northwest, lakes, and New England.
9, and 30.—Over Minnesota and the upper lakes into Canada, accompanied
hunder-storms north and west of the Ohio Valley, brisk winds over the
ake region, and Atlantic States, and rain, often quite heavy, from the Lower
Northwest and lakes to the Atlantic coast.
mary-signal was displayed at Duluth on the 17th.

TEMPERATURE.

temperature for June, 1873, is higher than the mean for the month, except
ty of Lake Superior, where it is lower by 0°.7 to 1°.8; in the South Atlantic
es from 1°.6 below to 1°.0 above, and from New Jersey and Eastern Penn-
Maine, 1°.2 below to 1°.1 above. The excess is greatest in Northeastern
; Northern New York, 1°.1 to 4°.7; Kentucky, Ohio, Indiana, and Southern

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Michigan, 1°.7 to 6°.5; Southern Alabama, 4°.9; Illinois, Southern Wisconsin, and Eastern Iowa and Missouri, °.5 to 2°.1; Eastern Kansas, 4°.2; Southern and Western Minnesota, 4°.8 to 6°.7; Fort Sully, Dakota, 8°.0, (†) and Cheyenne, 4°.4.

The mean for June, 1873, is lower than that for June, 1872, at San Francisco, 1°.1; the Gulf States, 0°.4 to 1°.6; in the South Atlantic States, 0°.3 to 2°.0; in the vicinity of Lake Superior, 0°.4 to 1°.6. It varies in the Middle, Atlantic, and New England States from 1°.1 above to 3°.9 below. The former is the higher in Iowa and Southern and Western Minnesota, 4°.5 to 5°.5; in the Ohio Valley, 1°.0 to 4°.7; over the lake region, 1°.1 to 2°.7.

Mean temperature.

Signal-service stations.	1871.			1872.			1873.		
	April.	May.	June.	April.	May.	June.	April.	May.	Jun
	°	°	°	°	°	°	°	°	
Washington	57.6	64.0	73.2	56.2	67.8	76.0	53.3	63.6	7
New York	54.2	58.6	69.0	49.7	61.9	72.8	46.3	57.6	
Boston	46.7	57.4	66.2	46.3	57.2	67.6	44.6	56.8	
Chicago	51.2	56.7	66.8	47.9	56.1	69.5	42.3	53.9	
Saint Louis	60.3	69.1	79.0	57.5	67.4	76.9	51.2	65.1	
New Orleans	70.8	76.0	82.5	70.4	75.8	80.5	66.9	73.7	

RAIN-FALL.

The returns for the month from the signal-service stations show that there has been an excess of rain over the mean from Florida to Western Tennessee, and westward to Arkansas and Eastern Texas, varying from 6.50 inches to 0.86 inch, from Eastern South Carolina to Southern Virginia 1.29 inches to 0.60 inch, from Central Indiana to Southeastern Missouri 1.42 inches to 0.68 inch, over Northeastern Ohio 1.23 inches, and from Eastern Nebraska northeastward to Eastern Minnesota and Northern Wisconsin and over Northern Michigan 4.34 inches to 0.45 inch.

There has been a deficiency in New England varying from 1.79 to 4.00 inches, the Middle States, except Southern Virginia, 0.44 to 3.26 inches, from northern portion of Georgia and South Carolina to the Ohio Valley 0.35 to 2.03 inches, from Northeastern Kansas to Southern Wisconsin and Northern Illinois 1.67 to 3.90 inches, over Northwestern Ohio and Southeastern Michigan 0.29 to 1.23 inches, and over Western Minnesota 0.98 inch.

RIVERS.

The Red River rose steadily at Shreveport during the first week, after which it remained nearly stationary until the 28th, when it began to fall slowly.

The Arkansas fell and rose alternately during the first twenty days, then fell steadily, having been eight and a half feet lower on the 30th than on the 1st.

The Missouri at Fort Benton rose steadily until the 19th. Throughout the lower portion of the river an almost continuous rise occurred, although a slight fall was observed between Kansas City and Brunswick after the 26th.

The Mississippi fell slowly at Saint Paul and between Cairo and New Orleans, (excepting some slight oscillations,) the difference between highest and lowest water for the month being at St. Paul nearly five feet, between Cairo and Vicksburgh nearly seven feet, and at New Orleans eleven inches; between Le Claire and Warsaw a gradual rise occurred from the 4th until the middle of the month, after which a steady fall was observed; at Saint Louis the water rose slightly between the 3d and 11th, falling slowly after that date.

The Cumberland at Nashville fell from the 1st to the 9th, then rose until the 14th, fell again until the 27th, rose until the 29th, but on the 30th it began again to fall, the difference between highest water (19th) and lowest water (9th) being six feet.

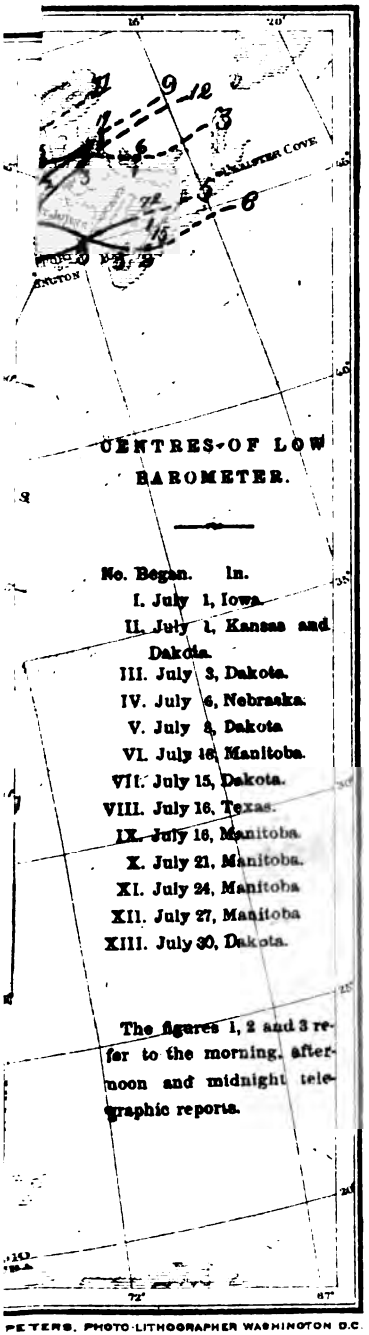
The Ohio, at Marietta and above, as well as its tributaries, has changed comparatively little; from Cincinnati to Evansville it has fallen almost continuously—the difference between highest and lowest water being nearly nine feet at Cincinnati, seven at Evansville and three at Louisville; at Paducah the water fell from the 1st to the 13th, rose until the 21st, falling again from that date until the 30th.

MONTHLY WEATHER-REVIEW, JULY, 1873.

STORMS.

During the month of July, 1873, thirteen areas of low barometer have been recorded on the daily weather-maps of the Signal Office; the tracks pursued by these will be found on the accompanying map No. 1; they have in general passed centrally over

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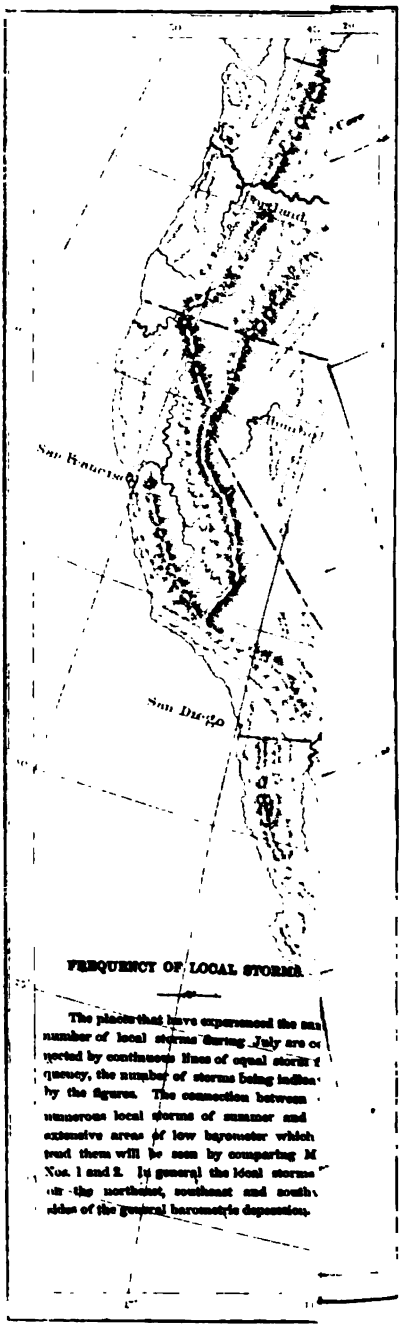
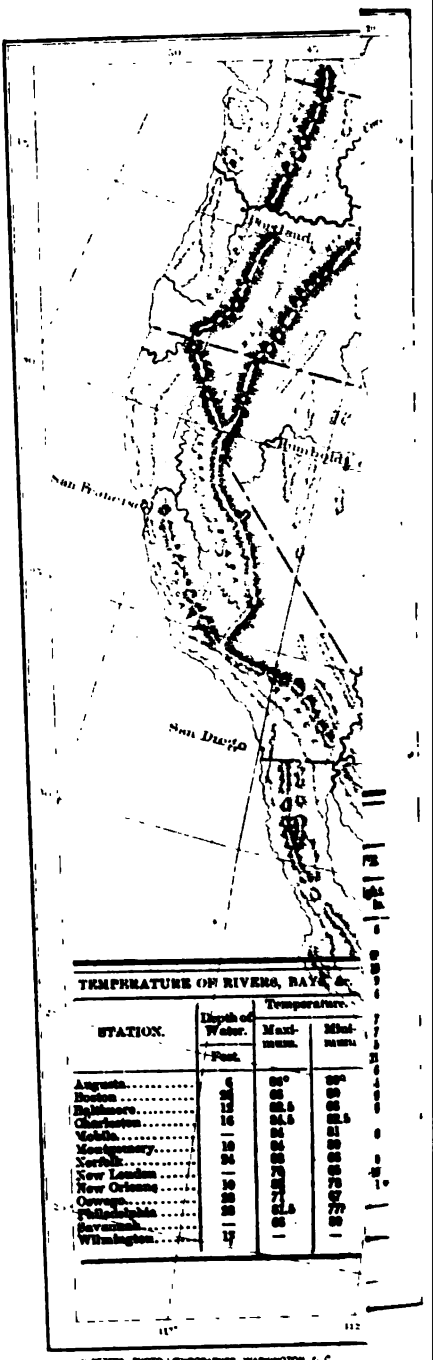


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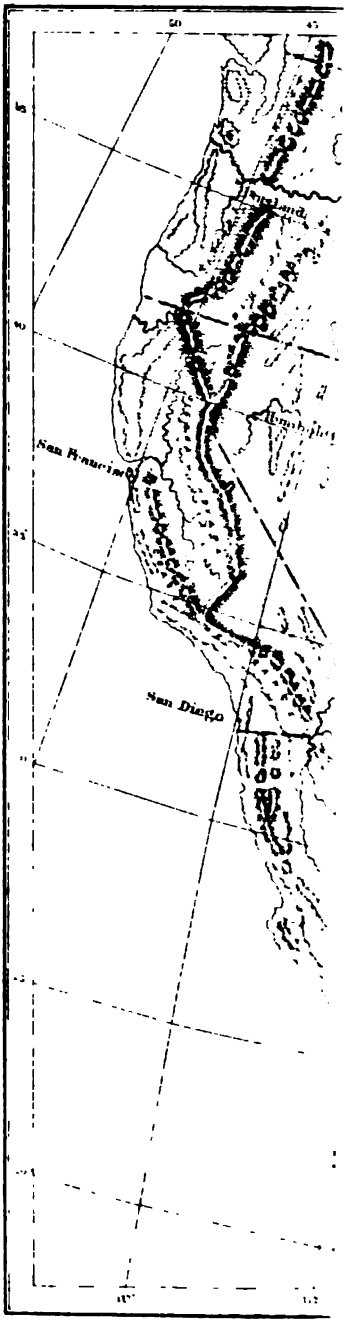
TEMPERATURE OF RIVERS, BAYS &c.

STATION.	Depth of Water.	Temperature.	
	Feet.	Maximum.	Minimum.
Augusta			
Boston			
Delaware			
Charleston			
Mobile			
Montgomery			
Norfolk			
New London			
New Orleans			
Oswego			
Philadelphia			
Savannah			
Wilmington			

E. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

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northern limit of the United States. This feature has indeed been this year more noticeable than in former years, as is seen from the following statement:
71. The mean latitude of the tracks of 15 centers of low barometer was 45°.
72. The mean latitude of the tracks of 14 centers of low barometer was 44°.
73. The mean latitude of the tracks of 13 centers of low barometer was 47°.
former years during this month, so in the present year, with scarcely an exceptions areas of low pressure first became apparent in or beyond Dakota and Manitoba. On most occasions the appearance of a low barometer in the Northwest has preceded by slight barometric depressions on the coasts of Oregon and California, as been impossible to decide whether the disturbances have passed from the Ocean eastward or have originated in the Rocky Mountains of British America. numerous local storms that are experienced during the summer months have a relation to the large areas of high and low barometer, to the topography of the , the position of the ocean and other bodies of water, &c., &c., all of which may be understood from map No. 2, on which are drawn with some approach to correct the lines of equal storm frequency for the month of July. The local storms are almost invariably attended with lightning, &c.) have been most numerous da, on the west and southwest side of the area of high barometer that prevails July on the Atlantic, between the latitudes of 12° and 30° north. The region greatest frequency is in Ohio and Western Pennsylvania, where the south and est winds attending the areas of low pressure rise up over the high country of tates. The storm frequency diminishes as we proceed from the Gulf coast ard over the low, flat country and northwestward toward the high arid plains; ther hand it increases as we proceed from the middle and east Atlantic coasts d up a rapid slope to the summit of the Appalachian range. The local storms t frequent on the dry plains west of the valley of the Mississippi River, and e indications of a region of diminished frequency in the northern part of the e of Ontario, though this may possibly be due to the scarcity of our stations in ion.

WINDS.

inds of special severity have been reported during this month, except the tor- July 3, at Indianapolis. The winds have reached the limit of *high* (a velocity miles an hour) only twice in the Middle Atlantic States and thrice in Dakota thern Minnesota. The prevailing winds (by which is merely meant the wind been recorded the greatest number of times) are shown by arrows on map No. which we also perceive something of the connection between the winds and ars. In general it may be stated, that south and southeast winds have pre- the Gulf States, Iowa, and Minnesota, but elsewhere over the country east of ky Mountains the prevailing winds have been from the south, southwest, and

RAIN-FALL.

tal amount of rain during the month appears to have been in excess in Indinois, and Michigan, and on the southern border of Lakes Superior, Erie and as also in New England. The reports from the summit of Mount Washington ain-fall of 13.5 inches, as contrasted with only 3.5 inches in July, 1872. On the nd the rain-fall of June was 3.5 inches, while in June, 1872, 18.5 inches were ; by combining the two we obtain for June and July together, in 1872, 22 nd in 1873, 17 inches. A deficiency of rain is apparent in the province of Onthe middle Atlantic coast, over the Lower Mississippi valley and in the Northhe details of the rain-fall are given for each geographical subdivision in the nying table.

Table showing the rain-fall and temperature for July, 1873.

District.	Average rain-fall.	Average temperature.
	Inches.	*Degrees.*
gland	3.5 or an excess	70 or an excess.
tlantic States	3.5 or a deficiency	77 or an excess.
ke region	5.0 or an excess	71 or normal.
ke region	4.5 or an excess	66 or normal.
tlantic States	5.5 or normal	81 or a deficiency.
Gulf States	5.0 or normal	82 or an excess.
Gulf States	5.0 or normal	82 or a deficiency.
lley	4.5 or a deficiency	77 or an excess.
ississippi Valley	2.0 or a deficiency	80 or normal.
ississippi Valley	4.0 or a deficiency	75 or a deficiency.
issouri Valley	2.0 or a deficiency	75 or an excess.
hwest	3.0 or a deficiency	75 or normal.

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TEMPERATURE.

The temperature has very generally averaged one or two degrees lower than corresponding month of 1872, which latter was indeed in many places one of the warmest on record. Compared with the average of many years, the past month seems have been from one to four degrees warmer than the normal temperature over Middle Atlantic and the Eastern Gulf States. In general, however, over the the country east of the Rocky Mountains the temperature has been slightly below average, the deficiency amounting to one or two degrees in the valley of the Mississippi River.

The accompanying table shows for each geographical subdivision the general temperature, as observed and as compared with normal values resulting from years of observation.

The details of the distribution of temperature may be seen from the isotherms given on map No. 3, and which hold good for the general surface of the earth.

The monthly range of temperature, or the difference between the highest and temperatures that have occurred during the month, is given by the lines of monthly range on map No. 4. It will be seen that the range is greatest in the dry localities, and least in low and damp regions. The range also increases with the latitude, even on the Atlantic coast, a phenomenon doubtless due to the changes in cloudiness and humidity.

RIVER AND OCEAN TEMPERATURES.

Reports have been received for the last ten days of the month from seven stations that have, at the suggestion of the United States Commissioner of Fisheries, been furnished with apparatus for observing the temperatures of the in the rivers, bays, &c.; the results promise to be of general meteorological The general results of these observations (the first of their kind) are given in printed on the border of map No. 3, where the comparison may easily be made the temperature of the water and that of the air, &c., &c.; the water-temperatures refer to the lowest stratum of water near the bottom of the river or bay, and vations are made daily at 3 p. m.

In general it is found that the range of temperature increases very regularly proceed from Cape Hatteras northeastward. The figures for each day show temperature steadily increased at Boston and New London from the 1st to and then began as steadily to diminish. This change may be due either to a fluence or to a change in the warm currents of the adjacent ocean.

RIVER-OBSERVATIONS.

A general view of the results of observations of the water in the rivers the table accompanying map No. 3. In addition to this table, the following only are necessary. The Red River fell steadily during the entire month. souri fell almost continuously, except at Leavenworth, where it rose during week of July. The Upper Mississippi has declined somewhat; the middle the river was at first stationary or slightly rising, and then began to fall steadily lower portion of the river, after falling and rising, has again begun to fall. berland has experienced three sudden rises and subsequent falls, attended periods of rain. Similar oscillations have occurred in the Ohio, a specially having moved from Pittsburgh to Louisville between the 6th and the month.

CAUTIONARY SIGNALS.

No cautionary signals have been displayed during the month.

MONTHLY WEATHER-REVIEW, AUGUST, 1873.

The general meteorological conditions as determined from the observations the stations of the Signal-Service, United States Army, during the month 1873, are indicated upon the accompanying maps.

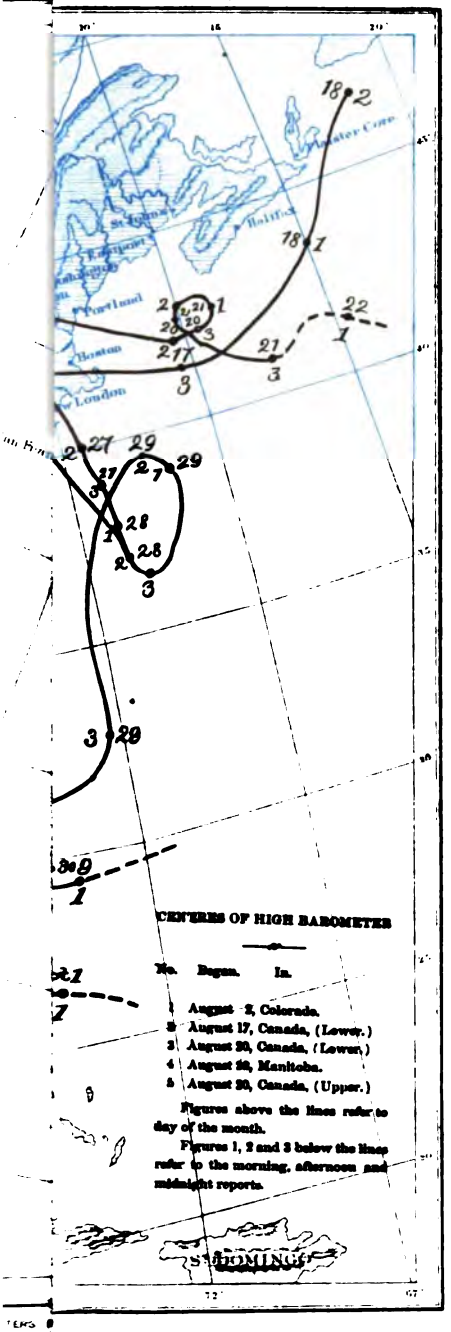
In comparing these conditions with those of the corresponding period years, the most noticeable features are—

1st. The excess of barometric pressure over New England and the Middle States.

2d. The diminution of temperature below the mean for the month of Avious years, in the districts above named, and thence westward to include lake region and the adjoining States.

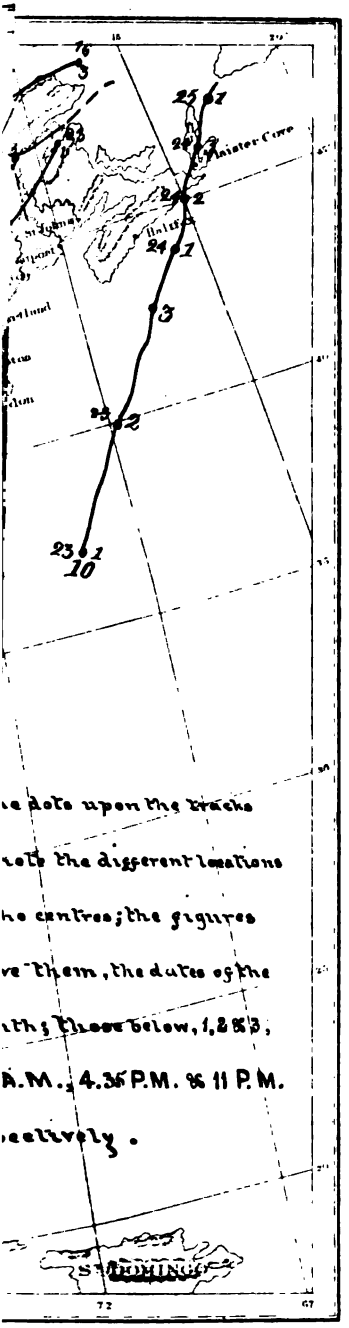
3d. The unusual quantity of rains in the Middle Atlantic district, esp the coast.

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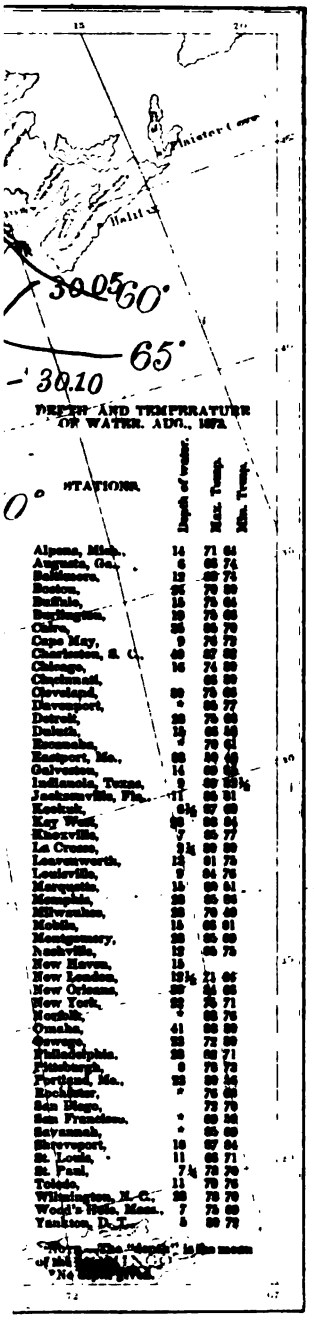
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e dots upon the tracks
oth the different locations
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ve them, the dates of the
ith; those below, 1, 2 & 3,
A.M., 4.35 P.M. & 11 P.M.
ectively.

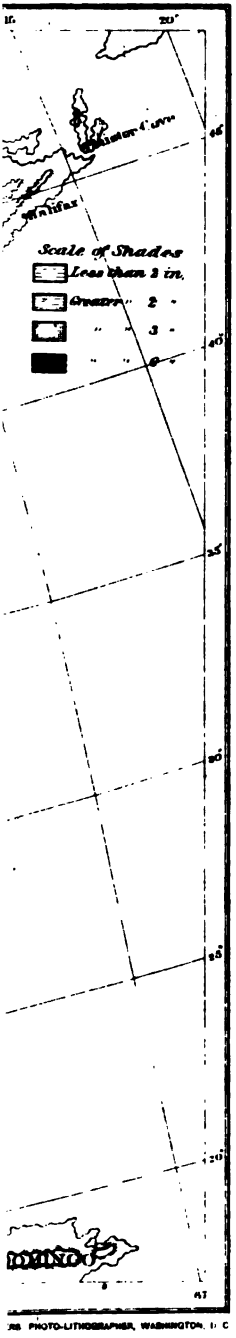
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The paths of the centers of the several areas of high barometer are traced on map
. 1.
These areas, with but one exception, were first observed in British America, after
ich they moved with such uniformity, and became so unusually well defined as to
der it possible to locate their centers at each of the tri-daily reports of this office
n the time of their first appearance until they finally passed beyond the limits of
ervations.
The general direction of these paths while the areas remained central on the conti-
t, is approximately from the northwest to the southeast, but for want of more ex-
ded observations their final direction after passing off the coast remains as yet un-
ermined.
During the month of August, 1873, twelve areas of low barometer have been traced
the tri-daily weather-maps, and the tracks pursued by the centers of these areas,
h explanatory notes, are represented on map No. 2. Track No. 2 may be found on
map accompanying the weather-review of July.
hese areas of low barometer were, with one exception, first observed either in the
itories of the United States east of the Rocky Mountains or in Manitoba; and by
rring to map No. 3, it will be found that this region is one of mean low barometer
the month. Seven of these areas passed eastward to the Atlantic coast within the
its of our stations, with a mean latitude of 43°.
he remaining areas passed to the northeastward into British America without any
ided atmospheric disturbance in the United States.

STORMS.

he areas of low barometer traced on map No. 2 were accompanied with slight dis-
ance while in the western portion of the United States, but no marked change in
weather occurred until the 11th of the month, when the area of low barometer
ked No. 6 was first observed in Kansas.
his storm moved slowly to the eastward, with cloudy weather, rain, and light to
h winds, the winds increasing in force as the center approached the Atlantic coast,
finally producing the northeasterly gale which occurred on the middle Atlantic
New England coast on the 14th and 15th. For this storm cautionary signals were
layed at Cape May, New York, New London, Wood's Hole, Boston, Portland, and
tport.
he second storm, and by far the most severe one that has occurred since the estab-
ment of the signal-service, is traced as No. 10 on map No. 2. Although this storm did
occur within the limits of our stations, there were indications of some atmospheric
rbance off the middle Atlantic coast on the 23d which warranted the prediction
e in the Probabilities written from the afternoon report of that date, viz, "For the
England and middle Atlantic coast, threatening weather," and from the midnight
rt of the same date, "For the New England and middle Atlantic coast, stormy
ther," with cautionary signals at Cape May, New York, and New London.
his storm, in consequence of its severity, is one of unusual interest, and the course
ked for it may vary from the actual, which cannot be determined until additional
have been obtained, when a complete and accurate description will be published
his office.
he third decided storm of the month was first observed as an area of low barometer
e western portion of Kansas on the 29th at 11 p. m. This area moved to the east-
l over the lake region without any marked disturbance until the night of the 31st,
n brisk and high winds, with areas of rain, were reported. On the morning of the
f September it had become unusually well defined in the lower lake region, after
h it passed over Northern New England and off the Atlantic coast with increasing
, finally producing a violent storm since reported from vessels which were in the
h Atlantic on the 2d and 3d of September.

WINDS.

part from the storms above referred to, no winds of special severity have been
rted, except from Dubuque, Iowa. At this station a violent tornado occurred on
7th, which, although entirely local in its nature, developed an unusual force and
ed great destruction of property. Owing to the carrying away and destruction of
nemometer at this station no recorded velocity of this wind has been obtained.
e unusual velocity of one hundred miles per hour was reported from Mount Wash-
on, N. H., during the storm of the 16th. The force developed by this wind has not
equaled at any other station since the establishment of the signal-service.
e direction of the prevailing winds of the several stations is indicated by the
ws on the map No. 3, and in comparing these directions with the isobarometric
on the same map, it will be observed that they incline toward the area of mean
barometer.

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RAIN-FALL.

The total quantity of rain during the month, as deduced from the report several geographical sections, is given in the accompanying table on map No. 4. Middle Atlantic States and in Minnesota there has been a decided excess o mean rain-fall as calculated from observations of previous years; while th been about the usual amount in the South Atlantic and Eastern Gulf State remaining districts there has been a deficiency. In the table referred to the q of rain given has been deduced by taking the general average of the reported rain-f the several stations in each district. The general distribution of the rain-fall, as from the reports received at this office and presented in the table above refer graphically represented on map No. 4.

TEMPERATURE.

In New England, the Middle States, and thence westward over the lower la and adjoining States, the mean temperature has been from two to five degre the normal, and about three degrees above the normal in the upper lake r Upper Missisippi and Lower Missouri Valleys, but in the districts last named t perature has been lower than reported for August, 1872. The results of the tions for the month are given in the accompanying table, in which is noted parison of the temperature of the several districts, with the mean temperatur from observations of previous years. The isothermal lines for the month, g map No. 3, indicate the general distribution of temperature throughout th States.

RIVER AND OCEAN TEMPERATURES.

The number of stations supplied with the necessary apparatus for determ temperature of water has been greatly increased, and the observations w commenced during July have been continued and promise to be of genera ological interest.

The table given on map No. 3, presents a general synopsis of these obs The temperature noted is that of the lowest stratum of water at the place of tion.

RIVER-OBSERVATIONS.

In general these observations show that the rivers draining the eastern sl Rocky Mountains were steadily falling during the entire month; and that th ing the western slope of the Appalachian range, experienced fluctuations a the rains of these districts. The table on map No. 3, presents these observa consolidated form.

MONTHLY WEATHER-REVIEW, SEPTEMBER, 1873.

STORMS.

During this month eleven low barometers have crossed the country east of t Mountains. Map No. 1 shows, approximately, the paths of their centers w passed over the lake region in a northeastward or eastward course, excepting on the South Atlantic coast. Several of them were remarkably severe over t lakes, and destructive to shipping.

That of August 30, 31, and September 1, was accompanied by occasional brisk winds over the Northwest, Ohio Valley, lake region, Middle States, England, the winds increasing to high from Michigan eastward over the lo and Saint Lawrence Valley.

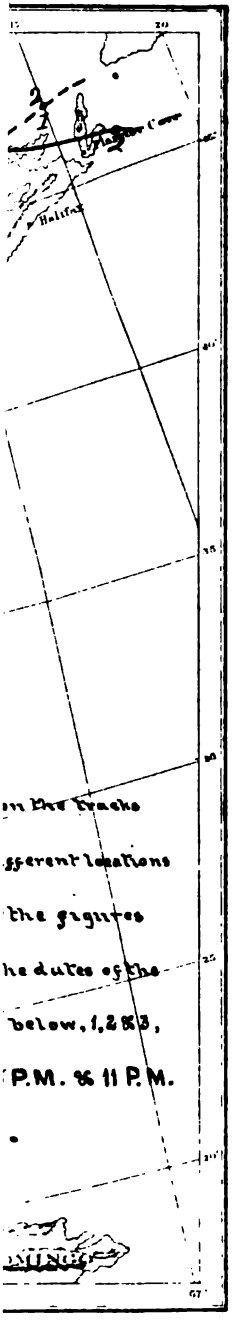
September 2, 3, 4, and 5, by brisk and occasionally high winds and rain Northwest eastward over the lake region, Ohio Valley, Middle States, and New A hurricane was reported as having lasted about one hour on Lake Mich tornadoes in Massachusetts on the 4th; very severe thunder-storms, with h in Eastern Tennessee on the 3d, and Southeastern North Carolina on the 5th.

September 11, 12, and 13, by rain at nearly all of the stations east of th Mountains; brisk and high winds over the Northwest and upper lakes; severe in Texas on the 13th; heavy snow on Mount Washington on the night of the

September 14, 15, and 16, by high south and west winds over the North upper lakes; occasional rain over Minnesota, the lake region, and New Engl

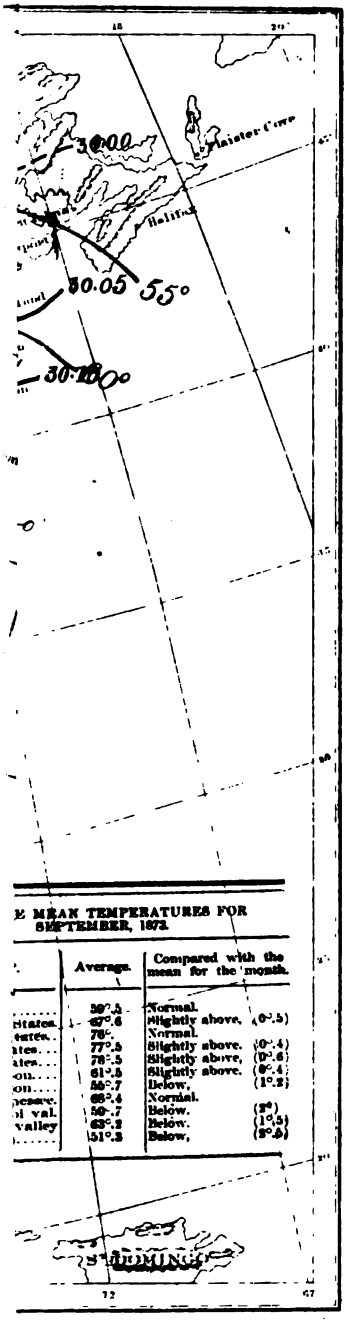
September 17, 18, and 19, by high winds over the Northwest, lakes, and St rence Valley; by rain from the Northwest eastward over the lakes, Ohio a Lawrence Valleys, Middle States, and New England.

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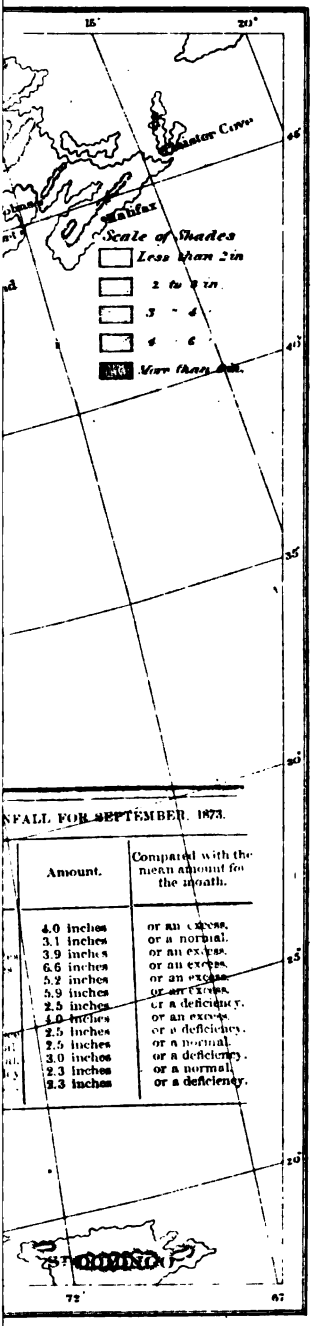


E MEAN TEMPERATURES FOR SEPTEMBER, 1873.

	Average.	Compared with the mean for the month.
.....	59°.5	Normal.
ntates.	67°.6	Slightly above, (0°.5)
tates.	76°.	Normal.
ates...	77°.5	Slightly above. (0°.4)
ates...	78°.5	Slightly above, (0°.6)
on....	61°.5	Slightly above. (0°.4)
on....	55°.7	Below, (1°.2)
neave.	66°.4	Normal.
ol val.	50°.7	Below. (2°)
valley	63°.2	Below. (10.5)
.....	51°.3	Below, (2°.5)

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NFALL FOR SEPTEMBER, 1873.

	Amount.	Compared with the mean amount for the month.
	4.0 inches	or an excess.
	3.1 inches	or a normal.
	3.9 inches	or an excess.
	6.6 inches	or an excess.
	5.2 inches	or an excess.
	5.9 inches	or an excess.
	2.5 inches	or a deficiency.
	4.0 inches	or an excess.
	2.5 inches	or a deficiency.
	2.5 inches	or a normal.
	3.0 inches	or a deficiency.
	2.3 inches	or a normal.
	2.3 inches	or a deficiency.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON.

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September 18, 19, and 20, by brisk and high winds and heavy rain from Florida to Southeastern Virginia, having been very severe on the coast.

September 22 and 23, by brisk winds and heavy rains on the South Atlantic coast.

September 23 and 24, by high winds over the Northwest and lakes; rains from the Missouri and Ohio Valleys to the lakes and Middle and East Atlantic coast. This was the severest storm of the month, especially on the upper lakes, whence very heavy gales were reported.

September 25 and 26, by high winds over the Northwest and upper lakes, with occasional rain; light snow in Montana on the 26th; heavy gales on the upper lakes.

September 27, 28, and 29, by high winds on Lake Ontario and the lower Saint Lawrence Valley; rain in all sections east of the Rocky Mountains, except the east Gulf States; followed by a severe "norther" in Texas during the night of the 29th and the morning of the 30th, and by light snow from Northern Minnesota and Dakota northward.

On the 7th, 8th, and 9th, an area of high barometer extended itself eastward over the Northwest, lake region, Ohio Valley, Middle States, and New England, with falling temperature, and with light frost over the Northwest and upper lake region.

13, 14, and 15.—A second, over the same region with quite heavy frost, which was very severe on the morning of the 13th over Dakota, Minn., and the northern portion of the upper lake region.

16 and 17.—A third over the Northwest, lakes, Middle States, and New England, with frost over the northern portions of these sections.

September 19, 20, and 21.—A fourth, from the Northwest over the lakes, Ohio Valley, Middle States, and New England, with frost, except probably on the immediate coast.

September 29 and 30.—A fifth, from the Northwest south and east over the entire country, with low temperature, producing frost over the northern sections.

TEMPERATURE.

On map No. 2 will be found a table of the average mean temperature for the different districts for this month. For New England, the South Atlantic States, the Ohio Valley, and Tennessee, it is the same as that for many years. For the Middle Atlantic and Gulf States, and the lower lake region, the former is the greater, from 0°.4 to 0°.6. For the upper lake region, Minnesota, and Upper Mississippi and Lower Missouri Valleys, it is less, from 1°.2 to 2°.5. Compared with the average for the same month of last year, the former is the lower for the stations in all of the districts, except the South Atlantic States, Tennessee, and the Ohio Valley, where it varies slightly above and below the latter.

RAIN-FALL.

Map No. 3 gives, approximately, the rain-fall for the various districts east of the Rocky Mountains. A table upon the same shows where there has been the average fall, excess, or deficiency.

RIVERS.

The observations show that the Missouri, Red, Mississippi, and Ohio Rivers fell quite steadily during the month, excepting slight oscillations in the head-waters of the two latter, produced by rains. The Cumberland fluctuated more or less, having been lower October 1 than September 1. Upon map No. 3 will be found a table which explains itself.

Sixty-one cautionary signals were ordered to be displayed at our own stations during the month for seven storms, and the majority of them on the lakes. Thirty Canadian stations were warned of the approach of storms.

PAPER 27.

Special Orders No. 78.

WAR DEPARTMENT, OFFICE OF THE CHIEF SIGNAL-OFFICER, *Washington, D. C., June 14, 1871.*

Sergeant Frederick Meyer, observer, Signal-Service, U. S. A., will proceed without delay to New York City, and report to Captain C. F. Hall, commander of the North Polar Expedition, for duty in connection with that expedition. He will, in addition to the performance of duty under the orders of Captain Hall, carry out the written instructions received from this office.

The Quartermaster's Department will furnish the necessary transportation.

By order of the Chief Signal-Officer of the Army,

GARRICK MALLERY,

Capt. and Bvt. Lieut. Col., U. S. A., Acting Signal-Officer and Assistant.

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WAR DEPARTMENT, OFFICE OF THE CHIEF SIGNAL-OFFICER,
DIVISION OF TELEGRAMS AND REPORTS FOR THE BENEFIT OF COMMERCE AND AGRICULTURE,
Washington, D. C., June 12, 1871.

SERGEANT: The Chief Signal-Officer directs that you will take daily observations during your entire expedition at 7.35 a. m., 4.35 p. m., and 11.35 p. m., Washington mean time, of the barometer, thermometer, wind, and weather, and such additional meteorological observations as are compatible with the duties assigned you by Captain Hall.

Among these additional observations, you will particularly bear in mind the following:

1. Frequent observations of the barometer, wind, and weather at hours intermediate to the above.
2. Regular observations of the minimum and maximum thermometers.
3. Velocity of wind at sea, especially in gales, and made with numerous anemometers in different positions.
4. Forms and motions of clouds, and meteor-tracks.
5. Ozone.
6. Electrical and auroral phenomena.
7. Solar and terrestrial radiation thermometers.
8. Forms, &c., of snow-crystals.
9. Heights of twilight arcs—noting the time very exactly.
10. Dew-point at very low temperatures.
11. Spectrum-lines or bands in the aurora and the atmosphere.
12. Polarization of atmospheric light and position of neutral points.
13. Rain and snow fall at different altitudes.
14. Temperatures of sea and rivers and springs, and the earth and snow at depths of 3, 6, 12, 24, and 36 inches.
15. Habits of plants and animals as affected by climate.

You will take special care to make accurate comparisons of your barometer, &c., with other instruments that you may find at points on your journey, that have been used for meteorological observations.

You will keep all the records for any period as far as possible in one and the same book; dividing it into two portions, one for the systematic observations at regular hours, the other for occasional observations.

You will keep a duplicate record of the systematic and more important occasional observations on Form 4, and forward the same to this office as often as occasion may offer.

Very respectfully,

H. W. HOWGATE,
Second Lieut. and Bvt. Capt., U. S. A., Acting Signal-Officer and Assistant.

Sergeant F. MEYER,
Observer, Signal-Service, U. S. A.

SERGEANT FREDERICK MEYER'S REPORT ON THE NORTH POLAR EXPEDITION, 1871–'73.

WAR DEPARTMENT, OFFICE OF THE CHIEF SIGNAL-OFFICER,
Washington, D. C., July 1, 1873.

GENERAL: I have the honor to inclose a report of my proceedings while in connection with the North Polar Expedition, which, by Special Order No. 78, I was ordered to accompany. All items and data of this report are from memory, and are based upon notes taken at the time of their occurrence, with the exception of a few observations for geographical position, and general outline of adventures while living on the ice.

The report naturally arranges itself under the two general headings—

I. History of the expedition.
II. Scientific operations of the expedition.

Heading II, according to the instructions of the National Academy of Sciences, consists of—

1. Astronomical observations.
2. Magnetic observations.
3. Observations on the force of gravity
4. Observations on ocean physics.

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5. Meteorological observations.
6. Natural history.
7. Geology.
8. Observations on glaciers.

No. 1 subdivides—

A. Astronomical observations at winter quarters.
B. Astronomical observations on sea and at ports of Greenland.
C. Astronomical and geodetical observations, forming a series of systematic surveys.

No. 2 subdivides—

A. Differential observations.
B. Observations on absolute declination.
C. Observations on intensity, (relative and absolute.)
D. Magnetic inclination.

No. 4 subdivides—

A. Depths.
B. Examination of sea-bottom.
C. Sea-temperature.
D. Density of sea-water.
E. Currents.
F. Tidal observations.

No. 5 subdivides—

A. Pressure of atmosphere.
B. Temperature.
C. Winds.
D. Clouds.
E. Precipitations.
F. Ozone.
G. Solar and terrestrial radiation.
H. Crystallization of snow.
I. Moisture.
K. Electrical phenomena.
L. Auroral phenomena.
M. Heights of twilight arcs.
N. Optical phenomena.
O. Shooting-stars and meteors.
P. Miscellaneous.

F. MEYER,
Observer Signal-Service, U. S. A.

Brig. Gen. A. J. MYER,
Chief Signal-Officer of the Army.

GENERAL DESCRIPTION OF THE VOYAGE OF THE STEAMER POLARIS FROM NEW YORK TO GODHAVN, DISCO.

I.—HISTORY OF THE EXPEDITION.

In compliance with the instructions received from the Chief Signal-Officer of the Army, I proceeded to New York in order to report myself to Captain Hall, commander of the North Polar Expedition, then about in readiness to leave port on its voyage to the arctic regions. Arrived at New York, I set at once to work to procure several instruments to complete my outfit as meteorologist of the expedition, and arranged my plans in regard to meteorological work.

All this occupied the entire time the Polaris was anchored at the Brooklyn navy-yard, where numbers of visitors appeared every day to look over the ship and give us their wishes to the adventurous enterprise which we were then about to undertake. The noble people of New York and Brooklyn did not only wish us a successful voyage, but they also contributed largely to our library, in presenting, for the use of the crew, enough of reading-matter to wear away agreeably the long and dark winter months soon to come.

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A few days before we left port, the Geographical Society of New York gave a reception to the officers of the expedition, during which Captain Hall gave a detailed description of the expedition, and his plans in regard to the main object of the voyage—the discovery of the north pole and the tract of land surrounding it. Also Dr. Bessels, the chief of the scientific party of the expedition, expressed his confidence of its success, which should make us more worthy of such honoring reception.

Finally, having completed all preparations for a voyage of such long duration, Captain Hall heaved anchor at 12 o'clock m., June 29, 1871, and proceeded about half a mile up the stream, where he laid to, in order to start out with the tide through Hell-Gate, which he accomplished at 7 p. m. the same day.

The company on board the Polaris consisted of Captain Hall, commander; Mr. Buddington, executive officer and sailing-master; Mr. Chester, first mate; Mr. Morton, second mate; Dr. Bessels, chief of scientific party: F. Meyer, meteorologist; Mr. Schuman, first engineer; one steward; one cook; a crew of twelve firemen and seamen; Joe, Hannah, and Punny, the Esquimaux interpreters. Besides these, Colonel Lupton, of the Patent-Office at Washington, an intimate friend of Captain Hall, who had assisted him for some time in arranging the business in connection with the expedition, accompanied us to New London, so that he might stay with his friend as long as circumstances would permit.

After a very pleasant trip we arrived at New London Harbor the following day, June 30, at 11.30 a. m., where I at once set to work to make arrangements for meteorological observations, to be taken while on the Atlantic, and actually made a series of comparisons of Adie's mercurial marine barometer, No. 767, with Green's mercurial standard barometer, No. 947, and found its error (in comparison with Green's No. 947) to be equal to 0.108.

All instruments were suspended in an instrument-shelter, fifteen inches wide, two and a quarter feet long and four and three-quarters feet high, and fastened to the port side of the pilot-house. They were placed in such manner as to secure as well as possible protection from radiation. The bulbs of the thermometers were about four feet eight inches from the deck of the ship, and two feet from the top of the shelter, six inches from the wall of the pilot-house, and nine inches from the blinds of the shelter. The barometer and ozonometer were also suspended in the instrument-shelter, the anemometer being located nearly half way on the port side of the quarter-deck. The instruments exposed for use were Adie's mercurial marine barometer, No. 767; Green's mercurial thermometer, No. 2893; Green's psygrometer, No. 1822, A and B; Robinson's (Green) anemometer, No. 40; ozonometer, and one Miller Casella's thermometer, to observe maximum and minimum temperature. A rain-gauge could not be properly exposed, and therefore a small one was set up, which could only be used at certain times.

Having everything ready for operation, I commenced to take observations on July 1, at 7.35 a. m. and 4.35 p. m., Washington time, after ascertaining that the elevation of mercury surface in cistern of barometer was equal to 8 feet 9.5 inches.

As on the previous day, people streamed on board the Polaris, looking over the steamer and greeting the explorers.

The main object of going into port at New London was the procurement of a second engineer, which Captain Hall accomplished in securing Mr. Odell for the said position. Toward evening, ladies of Groton Bank visited our vessel, took possession of the cabin and organ therein, enlivening our close quarters with their sweet songs and witty conversation, so that really space seemed to widen and time to rush.

During the succeeding day, July 2, two observations were made at 7.35 a. m. and 4.35 p. m., Washington time. In the afternoon gentlemen and ladies both of New London and Groton Bank rowed over to the Polaris, in order to attend the divine service, which was to take place on board of the vessel at 4 p. m., being held by Revs. Foster and Allen, ministers of New London and Groton Bank. At the appointed time the quarter-deck was entirely taken possession of by our visitors, and the service was opened by Minister Allen, in delivering a prayer and reading the chapter, after which Minister Foster, in a longer sermon, illustrated the dangers of our expedition, the scientific facts which were to be gained, and the laurels which were to be conquered by accomplishing the object of our expedition in reaching the north pole.

After the final prayer, the gentle people of New London and Groton Bank returned to their homes, bidding us good-by over and over again, and wishing us success, which they had the confidence would meet us.

On the following day, at 4.20 a. m., we left New London Harbor on the way to St. John's, Newfoundland, and as soon as we had cleared the Harbor, Colonel Lupton and the pilot left the vessel under the cheers of our officers and crew. We had fair weather until 10 a. m., when a heavy fog set in, and the sea commenced to swell considerably. Navigators and seamen on the portion of the Atlantic in which we were cruising, seeing a heavy fog always followed by a swell of the sea, explain one to be the cause of the other, while really both phenomena appear to me to have their origin in the same cause.

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From north latitude 40° and west longitude 70° to north latitude 42° 20′ and west longitude 60°, the equatorial and polar currents follow their course respectively, east-northeast and west-southwest, in close proximity, and produce heavy fog by rapid change of temperature of air-currents as they pass over the surface of sea-currents of such different temperature. On the other hand, whenever the wind blows in such direction as to cross sea-currents, driving the waters of one into the other, the different specific gravity of those currents will necessarily cause an additional motion of the waters, which is shown by the above-mentioned swell.

At one hour, Greenwich time, we commenced to take three-hourly meteorological observations, which, in connection with the latitude and longitude derived from astronomical observations and the log, make up the complete meteorological record of the voyage. During the following day, the fog and swell of sea continued to increase, showing a clear sky whenever the fog was depressed by a strong upper current.

Also on July 5 and 6, we were perfectly encircled by a fog, the sea continuing to be high.

Early on July 7 having come up to north latitude 42° 20′ and west longitude 60°, the fog disappeared, and the sea ran smooth.

On July 5 we commenced to take frequent observations of the sea-temperature on the surface and at greater depths, as also of the specific gravity of the water. In the evening the sea-temperature fell very rapidly, we being far from the direct influence of the equatorial current.

During July 8 fog made its appearance again, the wind blowing from a westerly direction which carried the warmer air over the cold currents, upon which we were then progressing. and which kept a nearly stationary temperature.

On July 9 the temperature of the sea fell still more, governing the temperature of the air, while heavy fog, caused by northerly and westerly wind, would not permit us to run the ship during night on such dangerous grounds as the Newfoundland banks.

Toward morning of July 10 the fog condensed into light rain, until in the afternoon when the sea-temperature suffered a very rapid depression, which caused heavy fog, going over into rain.

Finally, at 12 m., July 12, we arrived at St. John's Harbor, where we found the sea-temperature quite low, while the air-temperature, influenced by the soil, was considerably higher. Hardly any fog makes its appearance in St. John's Harbor, the air being very dry, and not capable of producing condensed vapor in the lower strata of atmosphere.

St. John's Harbor forms a small basin encircled by granite rocks, having the appearance of being encaved and rounded by former glaciers. We anchored at St. John's Harbor until the 19th of July, Captain Hall being engaged in making additional purchases of coal and provisions. At 4 p. m. July 19 we left St. John's Harbor, being accompanied by the American consul of St. John's, who, when he left the ship with the pilot, was cheered three times, to which he responded in the same manner.

About five miles from the coast, bearing southwest by south, we saw a mirage of a peninsula, showing an inverted image immediately above the one seen directly and in most distinct outlines. We also saw a faint aurora at 9 p. m. of 45° altitude bearing due north, and consisting of faint red and yellowish rays going over into white light.

On July 21 we found the sea-temperature increasing and nearly equal to that of the air. Toward morning of July 24, north latitude 55° 42′ and west longitude 51° 30′, the sea-temperature stood above that of the air until morning of July 25, when the air-temperature rose above that of the sea.

On July 25 toward midnight we saw a brilliant aurora, which, making its first appearance as an illuminated cumulo-stratus cloud, soon transformed into a broad ribbon of a square-edged, screw-like appearance, and based by the same cloud, which showed a yellowish light. The ribbon or screw showed distinctly all colors of the spectrum, and spreading parallel with the horizon, and at the crown, first formed a faint arc of spectrum light over its crown and then transformed itself into a faint arc of spectrum light, which finally combined with the upper arc, showing a most brilliant arc of spectrum light with diverging rays of purple and violet color.

On July 27 we arrived at Fiskenaes, where Captain Hall intended to engage for the service of the expedition the Esquimaux, Hans Christian, who had been a member of the expeditions under Dr. Kane and Dr. Hayes.

We were informed that Hans Christian was then at Upernavik, and in the Danish service. Fiskenaes is a small village of seventy inhabitants, which are mostly half-breed Esquimaux, and live on the earnings of seal-hunting and fishing, by exchanging them for provisions and necessaries of life which the Danish government provides for them. This exchange is conducted by Gov. M. Shonheyder, under whose jurisdiction comes also the little missionary settlements of Lichtenfels, located on the same island to the southwest, and inhabited by ninety members of the brotherhood. Both villages belong to the district of South Greenland, and their provisions are sent yearly in open boats from Godhaab, the principal place of South Greenland, which boats return to Godhaab with the fat, blubber, and cod-livers bought by the governor of Fiskenaes.

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Fiskenaes is entirely built on rocks, which consist of granite, with quartz-veins and porphyry. Vegetation is scarce; only the governor possesses a few artificial beds of vegetables, but an abundance of alp-flora are vegetating in the neighborhood. Very few reindeer are to be found near Fiskenaes, and the ice-bear approaches only about once in twenty years; but an abundance of seal and codfish is yearly collected.

The Esquimaux inhabitants are of good appearance, well fed and healthy-looking, which the governor assures me is the result of a law issued by the Danish government prohibiting the sale of fresh fish and compelling the natives to keep a large supply of fish on hand in storage for the long cold winter.

The male Esquimaux, in average, measures five feet, is of rather lazy habits but great endurance, and from eight to fifteen live in one small house built of lumber, and covered with peat, or entirely built of turf. The female Esquimaux is smaller but with very small hands and feet, and their hair tied at the crown of their heads by a ribbon, which, according to its color, signifies their state in relation to matrimonial life. A red ribbon signifies the female to be a virgin; blue, a married woman; black and white, a widow; white with a small ribbon wound around it, a widow who wishes to marry; green, a girl who has borne a child.

Each congregation has a teacher or cathecet, who preaches the divine word, but is not allowed to join members of the congregation in matrimony.

The minister of the gospel and physician visit the place once a year.

Several remarkable habits of the Esquimaux were related to me, of which I note the following most remarkable:

After taking the holy sacrament each native shakes hands with all present Europeans, which signifies their gratitude in regard to the acquirement of the Christian religion. Mortality among the natives is not great, but greatest in spring. It has been related to me that during last winter forty inhabitants of an island near Julianhaab perished by starvation, being blocked in by ice in such a manner as not to permit any provisions to be sent there.

The mean temperature of Fiskenaes during summer months is said to be about +1° Reaumur, while the winter is not very severe, and sometimes rather mild, as in the case of the preceding one, when the greatest cold observed was —14° Reaumur. The prevailing winds are northerly in winter and southeasterly in summer.

During winter months a southeast wind bears almost always the character of a gale approaching in elastic waves, which strike the lower strata of the atmosphere at intervals, and are very dry and rather mild. The snow-line in South Greenland, I was informed, varies from 2,000 to 3,000 feet elevation, and therefore no permanent snow is known at Fiskenaes, none of the surrounding mountains being higher than 2,000 feet.

At 3 a. m., July 29, we left Fiskenaes, encountering a southwest gale, indicated by a light westerly wind and a rapid rise of the barometer on the evening of the preceding day and morning of July 29. At 8 a. m. the wind veered to northwest, the barometer falling rapidly, which continued after the wind had veered to southwest.

The change of wind to southwest was accompanied by light rain, which ceasing at intervals grew into heavy rain, with an increasing force of wind.

At 7 p. m. the maximum velocity of wind was thirty-six miles per hour, and the minimum height of the barometer was 29.049, occurring at 8 p. m., when the force of wind gradually decreased, and the barometer slowly rose until 11 p. m.

At 11 p. m. the wind shifted slowly to west on the way to northwest, and rapidly lessened its force—the barometer rising rapidly, and clouds clearing away.

During the entire time the thermometer, within a very small range, marked distinctly the succeeding phases of the storm, rising until the barometer reached its maximum, on the morning of July 29, and then falling up to the time when the southwest wind set in, when, rising again for a short period, it continued to fall until the wind gradually veered to west. At 11 a. m., July 31, we arrived at Holsteinborg, where we found two Swedish government vessels, (steamer and schooner,) which were then on their return to Sweden, having been sent to Disco, in order to take up a piece of meteoric iron, which is thought to weigh about 300 tons, and in addition to which they found two more pieces of the same structure. These two vessels, under command of Captain Van Otter, having on board a botanist and a geologist, steamed and sailed up as far as Upernavik, sounding and ascertaining frequently the surface and bottom temperature of the sea. They also stated that the sea upon which they had been cruising was unusually free of ice, and very favorable for our voyage.

At 4 p. m., August 2, the Swedish vessels left port, proceeding on their voyage to Sweden. Holsteinborg is a small but beautifully situated village, surrounded by high and steep mountains of granite, and under the jurisdiction of Governor Elsborg. Barren of vegetation, with the exception of a few artificial beds of vegetables in possession of the governor, the alp-flora is of less variety. Reindeer are scarce, and when we reached Holsteinborg no reindeer-skins were to be got—ice-bear being also a rarity.

The natives are of the same type as at Fiskenaes, following the occupation of hunting

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and fishing, and occasionally whaling, which they keep up with success on their own coast during winter, sailing to the west side of Davis's strait during summer.

On July 31, Captain Hall, Dr. Bessels, and I went ashore, in order to take sights for longitude of Holsteinborg, and ascertained, according to my computation, Holsteinborg to be situated at 53° 53′ 45″ west longitude.

At 3 p. m., August 3, we left Holsteinborg, and proceeded to Godhavn, or Lively, Disco.

About thirteen miles from Holsteinborg we passed by the peak known as Woman's Hood, which on its southerly extremity resembles very much a woman's hood, and of which I made a sketch. We arrived at Godhavn at 3 p. m. August 4, where, in consultation with the governor of Lively, Mr. Lassen, we learned that good coal might be got at Scansen and Rittenbank, but that the first-mentioned place was dangerous to anchor at, being exposed to southwest gales. Captain Hall, therefore, concluded to wait for the supply-vessel until the 15th of August, and then proceed to either one of these coal-mines.

He also dispatched a boat, under the command of Mr. Chester, to Jacobshavn, where the inspector of North Greenland stopped at the time, in order to induce him to come to Lively, so that Captain Hall might be able to procure the necessary stores, in case the supply-vessel should not arrive in time. Mr. Chester left Godhavn at 1 p. m., August 6, and returned at 2.30 a. m., August 11, bringing with him specimens of the coal of Scansen, which showed the structure of wood, and formed thin layers.

On August 5 we saw a parhelion, which showed a distinct eccentric ring of spectrum colors, the red light facing the sun; yellow, green, and faint blue following in succession. The altitude of the sun was at the time 14° 54′, and of the ring (vertex) 75° 26′. Bearing north of the sun at a distance of 22° 42′ a parhelion made its appearance showing faintly the spectrum colors, the red light facing the sun, yellow following, and ending in distinct white rays of at least 20° length.

On August 10, at 2 p. m., the steamer Congress, under command of Captain Davenport, with supplies of provisions and coal, arrived at the port, having on board Dr. Newman and Mr. Bryan, ministers of the gospel, and Mr. Bryan, jr., the astronomer of the expedition.

I will briefly state that after the arrival at Godhavn of the Congress, with provisions and coal, several days sufficed for the transfer of these provisions and coal, partly to the Polaris and partly to the store-house of the Danish government. While at this locality Captain Hall was considering about my return to the United States; he had ordered me solely to attend to the navigation of the vessel and keeping of his journal, and prohibited all meteorological observations, and observations of any description; this order I thought to be in discordance with my instructions and the general purpose of my presence with the expedition, and I therefore applied for permission to return to the States. At first Captain Hall appeared willing to grant my request, but shortly before the Polaris left Godhavn he changed his intentions, and permitted me to comply with my instructions from the office of the Chief Signal-Officer of the Army, besides the execution of his own orders. I gladly accepted Captain Hall's decision, and expressed my general willingness to promptly execute his orders.

Leaving Godhavn, where Captain Hall had procured a written permit of the inspector of North Greenland for Hans, the Esquimaux, to leave the Danish service, and enter that of the Polar Expedition, the Polaris headed to the west of north, and after two days' run arrived at Upernavik, a comparatively large settlement of natives, under the Danish government. At the latitude of Upernavik, and even farther south, the coast of Greenland is studded with small islands and rocks, which like a line of skirmishers protect the coast from the wearing influence of the heavy arctic ice, continually grinding by on its long trip from the high northern latitudes, where it arises and grows, to the Atlantic Ocean, where it wastes and finally disappears. On one of these islands Upernavik is situated, with a snug little harbor, protected on three sides by hills of respectable size. As soon as the anchor dropped, Dr. Rudolph, the governor, and Mr. Elberg, who was to take the governor's place in the course of a few days, visited the Polaris, and at once were presented by Captain Hall with letters from Inspector Smith, who enjoined the Danish officers to do their utmost in procuring dogs and skins for the expedition, as well as to be of general assistance to Captain Hall in the business transactions of the expedition. Already, the morning following our arrival at Upernavik, a great number of seal and dog-skins and a few dogs were received on board, and a boat expedition under command of H. C. Chester, mate, sent to Proven, to the governor of which Dr. Rudolph previously had dispatched, by kiak-mail, orders for Hans's departure from Proven, and for the deliverance of the same to Mr. Chester, who was ordered by Captain Hall to engage Hans's services for the expedition. Mr. Chester with Hans and family returned to the vessel a day or two after. Soon after the Polaris was gotten ready for departure, and the governor, Mr. Elberg, who had succeeded Dr. Rudolph, accompanied the expedition to Tessuisak, where he intended to assist Captain Hall in procuring a great number of dogs, and to conduct the final business transactions of the Danish government with the North Pole Expedition.

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Tessuisak is situated on an island which lies in the entrance of a deep bay, the head of which consists of a large glacier, and consequently the bay always abounds in icebergs. At the season of our stay at Tessuisak these icebergs were rather far advanced in decay, and hardly at any time the air would not be vibrating by the tumbling and rolling of one or the other iceberg, causing a noise most similar to the sounds of battle in the roaring of field-pieces.

As expected, Captain Hall procured a number of dogs and ready-made skin clothing at Tessuisak, settled his accounts with the Danish government, and, as soon as the weather permitted, left the harbor of Tessuisak with Mr. Jensen, the acting governor of Tessuisak, as pilot. Captain Hall had exerted all his powers of persuasion to induce Mr. Jensen to join the expedition, but in vain. Mr. Jensen would only agree under the unreasonable condition that he should have the command of the vessel on her arrival in Smith's Sound. The first evening and night after leaving Tessuisak we made but little progress in Melville Bay, as thick fog compelled us to advance carefully: but on the morning of the second day Cape York was sighted and the appearance of Cape Dudley Digges expected. When arrived at the latitude of Cape Dudley Digges, it was found impossible to land and comply with the instructions of the Secretary of the Navy, as heavy ice intervened between the vessel and the shore. Running close to the coast, we passed Wolstenholm Sound, between Wolstenholm Island and Cape Athol, and leaving the latter on the starboard quarter we ran up to within five or ten miles of Fitzclarence Rock, where the vessel had her first trial of working ice, in pushing through it from Fitzclarence Rock to Cape Parry, at the latter, where she entered the open water again by holding more to the westward. Passing Northumberland Island at a considerable distance west, the Polaris without difficulty ran up to within a few miles of Cape Alexander, and leaving at her stern in succession Port Foulke and Renselaer Harbor, the winter-quarters of Dr. Hayes and Dr. Kane, she crossed Smith's Sound and came within a few miles of Cape Hawks, where she encountered ice, but we rounded it by steering south and west; then running parallel with the coast until we arrived opposite Cape Frazer, she was stopped, and Captain Hall, accompanied by Mr. Tyson, inspected the little inlet to the north of Cape Frazer for its qualification as either provision-depot or winter harbor; but finding it shoal, Captain Hall abandoned all ideas of establishing his winter-quarters at the locality, and also failed to establish a depot. Keeping within ten or fifteen miles of the coast, we ran up Kennedy Channel, winding through more or less ice, until, in a thick fog, an ice-barrier appeared to stretch across the channel. After several fruitless attempts, an opening was discovered, which led us to within two miles of an island seen on our starboard bow. Five or six hours later we found Kennedy Channel to be widening, and at about 9 a. m. Captain Hall and myself made observations for longitude, which, computed separately, determined the latter to be 64° 35′ west, (if my memory is not in error.) The fog shutting in, the vessel was stopped, until at 12 m. all persons capable of making observations for latitude agreed our latitude to be 81° 24′ north.

At 1 p. m. the sky and horizon cleared, the vessel started, and then we saw, in place of Kane's open Polar Sea, a long stretch of coast-line to the east of us, which, bare of snow, sweeped in a shallow curve from north to south; the west side of the channel was also in sight, the general character of the land being torn and weather-beaten rocks, with mounds of loose rocks and gravel in front of them. Steaming parallel to the east side of the channel, we, toward evening, entered a still narrower strait, which received the name of Robeson Channel, called so by Captain Hall after the Honorable Secretary of the Navy. On we proceeded in this channel, passed a deep bay—afterwards called Newman's Bay—until hauled up a second time by an ice-barrier, when Captain Hall ordered the vessel to be fastened to a floe, while I was busy computing the dead-reckoning from our last observation—81° 24′ north, 64° 35′ west—to the present position of the ship. I was then invited to Captain Hall's room, and telling him the latitude, 82° 16′ north, and longitude, which I cannot recall, found, by dead-reckoning, also temperature of atmosphere and surface-water, pressure of atmosphere, &c., he filled out two of the printed forms of records with a short extract of the expedition's history, position of the vessel, data of weather and sea, and a statement of the ice prospects of still advancing further north. One of these records Captain Hall inclosed air-tight, in a copper cylinder, previously weighted on one end with shot, and retained the second copy. Only a short time the vessel remained fastened to the floe, when she was directed to the east and south, until we arrived at the east coast, near a small inlet. Here Captain Hall and Mr. Tyson visited the inlet, and examined it as to its qualification as a harbor, but found a strong action of the tide and ice working. The vessel then steered back to the westward, and fastened to a floe, where she remained all night. Early next morning the vessel returned to the above-mentioned inlet. Captain Hall and Mr. Tyson re-examined it; but finding their opinion of the previous day corroborated, Captain Hall called a council of the ship's officers to decide upon the further course of the vessel, and enjoined me to record the proceedings of the council. During this council all the officers, with the exception of Captain Buddington, expressed the same opinion, according to which the vessel should be directed north

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and west, endeavoring to find a lead north, and, if not successful, to make the west coast and a harbor thereon. Captain Buddington's opinion was to enter the above-mentioned inlet, afterwards called Repulse Harbor by Captain Hall, and establish winter quarters; or, if not disposed to do so, to run south to what afterwards was called the Southern Fjiord, and anchor behind the island at its entrance. Captain Hall decided in favor of the majority, and the vessel slowly worked through ice on a course a little to the north of west, but instead of gaining lost ground in latitude. Finally, fog shut in, she was fastened to a floe, and soon got beset by heavy ice. In this condition she remained four days, during which time she continually drifted to the southwest. While beset, the vessel at times would labor under such heavy pressure that Captain Hall twice thought it necessary to deposit stores and provisions on the floe. On the evening of the fourth day of drift the ice spread, and the Polaris steamed on a nearly due east course to the shore and anchored in a shallow inlet, which received the name Thank God Harbor, called so by Captain Hall. This inlet could hardly be called a harbor, and the only protection against the grinding ice the Polaris found, was a large grounded iceberg, to which Captain Hall gave the name of Providence Iceberg. Next morning stores and provisions were landed, and the determination of latitude and longitude was commenced by Captain Hall, Mr. Bryan, and myself.

A few days after our arrival at Thank God Harbor, Captain Hall enjoined me to at once survey it, which I executed by surveying from the southeast cape of Robeson Channel, called Cape Lupton by Captain Hall, to the northeast cape of the Southern Fjiord. Thank God Harbor is formed by low, sandy land, which evidently is an alluvion from the hills to the northeast of it. These hills vary from 900 to 1,300 feet in height, are of slate formation and very much torn and weather-beaten, but bare of snow in summer. The water of the harbor is shallow—fourteen or fifteen fathoms being the average depth.

On our arrival at Thank God Harbor we found it thickly populated by geese and ducks, but they were missing next morning. While engaged at the survey of Thank God Harbor I met with two accidents which nearly terminated my earthly existence.

One morning, going out with the intention of stationing myself on the summit of the hill north of the vessel, deeply in thought, I took the wrong route and soon found myself on an almost perpendicular portion of the hill; endeavoring to climb up I lost my foot-hold, and was precipitated down a height of at least 200 feet; a heavy stone rolling down behind me caught my coat and stopped my involuntary descent, saving me from finally bringing up against a rock. At another time, in company of Mr. Bryan and Mauch, I crossed Polaris Bay to its south coast on the newly-formed young ice, and when returning Mr. Bryan and myself in succession fell through a crack, and were only saved from being drowned by rendering assistance to each other; and from freezing to death, by keeping on a sharp pace until our arrival at the ship, when Mr. Bryan, almost entirely used up and insensible, had to retire to bed immediately. Mauch had stayed back, and when finally arrived at the vessel he was staggering, out of his senses, and hardly able to keep himself up.

Soon after, Captain Hall sent out a sledge journey under command of Mr. Chester and accompanied by Dr. Bessels; this expedition traveled about fifteen miles south, and from the range of hills on the south coast of Polaris Bay saw a glacier extending east and west as far as eye could reach; they also found an elevated plain bearing to the northeast, between the range of hills northeast of Thank God Harbor, and those at the south coast of Polaris Bay, and shot a musk-ox. Captain Hall now prepared for a sledge journey, but was not quite ready until the 10th of October, when he issued orders to Captain Buddington and Mr. Morton in reference to the command of the vessel and provision matters, and started with two sledges, accompanied by Mr. Chester, Joe and Hans, with the intention of a two weeks' absence. The object of this journey was to reconnoiter the land as to its qualification as a route to be taken in spring, and to get acquainted with the resources of the country. During the absence of Captain Hall, the observatory was erected and fitted out; when he returned, on the 24th of October, 1871, we were ready to commence all observations prescribed by the instructions of the National Academy of Sciences.

From what I learned afterward, Captain Hall had been to Newman's Bay by way of the elevated plain mentioned above, and traveling to the entrance of Newman's Bay, ascended the cape, on the northeast, and deposited a record at the summit of said cape.

Soon after Captain Hall had set foot upon the vessel he was taken ill, complaining of the stomach, and retired to bed; next morning his left side was found paralyzed, and he remained in this state for some days, when he became better, left his bed, walking about in the cabin, and having his secretary, Mauch, read to him; he then had a relapse, took to the bed again, and became delirious, in which state he remained until the 8th of November, 1871, when he died. The remains of Captain Hall are interred at about half a mile to the southeast of the ship's anchorage; the place of interment was marked by a flag, the solidity of the frozen ground not permitting the erection of a board until the spring following. The engraving upon the board gives the principal achievements of the expedition, the age of Captain Hall, and date of his death and burial. During

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the summer of 1872, I included Captain Hall's grave in the general survey of Thank God Harbor, by reference to three points previously determined by the theodolite and chain.

After Captain Hall's death, Captain Buddington assumed command of the vessel and jointly with Dr. Bessels issued a proclamation, wherein they stated that the provisions made by the Secretary of the Navy, in case of Captain Hall's death, should be carried out; that Captain Buddington would have the command of the vessel, while Dr. Bessels was to direct all sledge journeys and scientific operations. Arctic night had then set in, and scientific observations at winter-quarters had commenced; the vessel had been housed in under canvass and banked in with snow. During the entire Arctic winter, the members of the scientific party were busily engaged in carrying out the instructions of the National Academy of Sciences, while all others had to content themselves with active exercise on the ice and the reading of books of instruction and fiction. No marked incident or accident occurred during the four and a half months' darkness, with the exception of one soon after Captain Hall's death. During a severe northeast storm, the ice, wherein the Polaris had bedded, broke up, the anchor-chain, also frozen in, was carried with the ice, and the anchor dragged; it therefore was found necessary to unshackle the chain, and the Polaris drifted to the southwest, bringing up against Providence Iceberg, to which she was secured by ice-anchors. The northeast storm, the original cause of this accident, lasted three days, and had commenced two days before the vessel broke out; it started as a high wind during my watch at the observatory, and increased to a tremendous gale during Dr. Bessel's watch.

Waking up in the morning, I found the vessel laboring heavily, and from different sides heard fears expressed of Dr. Bessels's safety. I therefore got a few victuals to take with me, and left the vessel; but struck by the gale, I found it impossible to stand up, but had to be content with making my advances on all-fours. Dark as it was, the snow drifting so as to enter through clothing and lodge near the skin, I could not see but one yard ahead of me; and if, by inclining my shoulder too much either left or right, I once took a wrong direction, it was more than likely that I never would see again either observatory or ship. Steadily I advanced, and soon had the satisfaction to arrive at a pole, erected in line with the observatory and ship, close to the beach. I now endeavored to crawl up the ridge to the observatory, but was driven back by the wind a number of times, until finally I succeeded in getting under the lee of the provision-depot, and from there to the observatory. I found Dr. Bessels suffering with the cold, (—28°,) and anxiously waiting for an opportunity to return to the vessel. He had made several attempts to return, but the fearful tempest had defeated his physical strength. He had registered the meteorological features of the storm that a light could not be kept burning any longer, the wind blowing at the rate of from eight miles per hour, and still increasing.

Soon after my arrival at the observatory the two natives entered, having followed me, but lost their route. We then all started for the vessel by sliding on the ice, driven by the wind; when the ship loomed up we were within a few yards of it; all arrived safely at the Polaris without injury, excepting a few slight frost-burns.

Soon after the northeast gale's abatement a southwest storm sprung up, which by driving the iceberg inshore, caused a heavy pressure on the vessel, so much so that Hans and family sought refuge at the observatory. During the entire winter the vessel had a list to starboard, and thereby strained her stern and bows, which were found to be in a leaky condition as soon as the ice around the vessel commenced to melt.

On the 28th of February, 1872, the sun made his re-appearance, but was then near 2° high at 12 m. I never before saw such enthusiasm and rejoicing over a sunrise as on that occasion; and I especially recall the carpenter, who during the winter had shown symptoms of insanity, carrying around a bottle of claret, which he had preserved during the entire winter, and inviting everybody to drink with him. And, indeed, the sun's rise, after four and a half months' absence, was a matter to rejoice in. I think everybody had felt the influence of the absence of light by losing appetite, sleeplessness, and depressed spirits.

Dr. Bessels now officially communicated with Captain Buddington, making the following propositions: As soon as daylight is sufficient, to start two different sledging parties, one north and the other south; the southern expedition to connect our station with Cape Constitution, and to consist of one sled; the northern expedition to proceed on the strait ice, with two sleds, and to make land, if possible, north of Polaris Bay, and to proceed from there either along shore or on land farther north; the vessel as soon as broken out, to make her way in the same direction, and come to the relief of the northern expedition. These propositions were rejected by Captain Buddington in an official communication, stating that as soon as small leads occurred he would start to the north in two boats. This decided the question, and we all were anxiously waiting for the occurrence of those leads.

Early in spring the natives and Mr. Chester made several hunting-trips on sledge

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) Newman's Bay, and always returned, sledges loaded up with meat, leaving the great-
t part stored at Newman's Bay.
Dr Bessels, Mr. Bryan, Joe, and Hans traveled south, crossed the Southern Fjiord,
d proceeding from there about forty miles farther south, Hans recognized Cape Con-
itution at some distance south. A wide crack in the ice stopped the party from vis-
ng the point itself; while in the Southern Fjiord to some distance they saw no head
it, and treasured a great number of important fossils at the island in the entrance of
e fjiord.
About this time I undertook a journey to Newman's Bay for surveying purposes.
ewman's Bay is about forty miles deep, and from seven to twelve miles wide, with
ll-ranges on either side of the entrance and head. In the middle of its length it is
und by an elevated plain on the west side, and by plains, in terraces, on the east side.
these terraces I traveled to about latitude 82° 09′ north, longitude 57° west, and
rveyed as far as the eye could reach. I was stopped by want of provisions, which had
en provided by Captain Buddington.
n June water was making around Cape Lupton, and Mr. Chester, returning from
connoitering, reported in favor of the dispatch of two boats, which were sledged to
pe Lupton, and placed under command, respectively, of Mr. Chester and Captain
son. Dr. Bessels accompanied Mr. Tyson, and I accompanied Mr. Chester. The
rning following our arrival at Cape Lupton, Mr. Chester took to the water, and by
ring and driving over the ice the boat and provisions, we succeeded in reaching a
nt on the coast three or four miles north-northwest of Cape Lupton. Here we
led the boat up on the ice, and a watch was set. The men laid down in a tent,
ile Mr. Chester and myself slept about five yards from the tent and boat.
Early in the morning next day we were roused by the man on watch, who first
orted that water was making round us, and then that an iceberg, propelled by a
vy floe, was coming upon us; but before he had finished his report the ice broke
ween the ice-hook holding the boat, and the boat started to drift; the man on
tch leaped the crack and returned to the boat, then in danger of capsizing with the
and laboring under a heavy strain from the rope holding it to the ice-hook. The
e had to be parted; the boat and tent drifted off with the crew, while Mr. Chester
myself remained near shore on the remainder of the original piece of ice, which
a was crushed by another and heavier piece rising to a vertical position and fall-
down on the former; we narrowly escaped to the shore-ice. A similar fate awaited
piece with the boat and tent on, and when this occurred the crew was just in time
each the shore-ice. I then saw that the boat, although crushed, was partly held
by the ice underneath. I at once leaped over to her, having asked to be warned of
roll or motion of the intervening small ice. Most of the crew followed, and we
eeded in saving part of our clothing, some provisions, and nearly all instruments.
eral times the ice started to roll, and some of us came very near being crushed by
ice. We then returned to the vessel, and on passing Cape Lupton found Captain
on had not started yet.
r. Chester procured permission from Captain Buddington to make a second attempt
the canvas boat, and in the course of a few days we were ready, and sledded the
to Cape Lupton, where we immediately took to the water, pulled a few miles, but
ly were compelled to haul up on a big floe. A heavy north breeze sprung up; the
-ice closed around us and intervened between floe and shore. Here we remained
ntire night, drifting rapidly south, and convinced that, if the ice kept closing in
is, we would have to stay on the floe and finally fall victims of starvation. I
avored to cheer my comrades, but without avail. Thinking this a second failure,
spirits were depressed; nevertheless, we laid down on the ice and slept until
ning, when the ice spread, and we at once launched the boat in the midst of this
nd during the following twelve hours made our way to Newman's Bay, where we
d Captain Tyson, having pulled up his boat on the bay-ice. As no further pro-
could be made, heavy pack stretching across the channel from Newman's Bay to
vest coast, we also took up our quarters on the bay-ice, and remained there during
ollowing six weeks, patiently waiting for an opening to the north.
most every day, while on this stationary bay-ice, I would observe that with the
streak of water would form between bay-ice and strait-ice, extending in a semi-
from Cape Brevoort to Sumner Headland. We have to be thankful for many
ow escapes while on this bay-ice. I will only mention two cases, which occurred
most the same time to each boat, separately. At midnight of some day in the first
of July, the heavy strait-ice closed in upon the bay-ice with such a heavy pres-
that it rose vertically alongside of us, and we were compelled to desert skins,
apidly remove boat and stores, while most of us had no time to protect our feet
ther stockings or boots. During the same night a part of the bay-ice, from which
ain Tyson and boat had removed the preceding afternoon, was crushed to splinters
e grinding strait-ice. I have often wondered how careless the adventurer will
ne when once used to dangers. Similarly to the inhabitant of a large city, who in
of fire will not think of his own safety until the walls of his residence have

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caught the flames, the arctic traveler, hearing a constant cracking directly under himself, will not stir until he actually sees the ice breaking.

During my stay at Newman's Bay I crossed the bay-ice, and, ascending the northern coast of the bay, traveled on the east shore of the channel until I reached the southern limit of Repulse Harbor, where I staid four hours, in order to determine land and longitude, and to take bearings of all land visible. The station I had selected elevated somewhat above 1,700 feet, and the horizon, at such an elevation, forty miles distant, from north to east-northeast appeared as a continuous bright line dark blue, glittering in the sunlight. Although seen by other observers, and decided to be land, I cannot but announce this bright line to be a sure sign of an open sea. elevations were seen; and if there is any land to the north and east-northeast Repulse Harbor it cannot but be at a considerable distance from where I was viewing the surroundings. The space between this bright line and place of observation filled with smooth cakes of ice, with serpentine leads of water between them. I started homeward, under the impression that any strongly-built steamer, when once fairly through the ice, barring the narrowest part of Robeson Channel, might at full speed run up to this bright line and there find open water for further progress. I had very difficulty in finding our boat among the hummocky ice, and when finally arrived became snow-blind and remained so for several days.

The question may arise, why I did not proceed farther north while traveling shore. In answer, I have to state that, while at Newman's Bay, we from day to day expected an opportunity to start north by boats, and therefore I did not want to be away from the boat longer than twenty-four hours.

In the first part of July, still hoping for success, we got rather low in provisions and two of our crew volunteered to travel over land to the ship and return to us additional provisions. They did so; and soon after Hans, with a note from Captain Buddington, appeared at our encampment, and returned to the ship with Dr. Bessels. Captain Buddington's note requested our presence at the vessel, and ordered Messrs. Chester and Tyson to return to the ship with boats and crew. In answer, Hans bore a note to Captain Buddington, wherein Mr. Chester stated that at present they would not permit a return of the boats. A few days later our two men returned with provisions, stating that the vessel had broken out in June, was very leaky, and that Captain Buddington wanted our presence, so as to enable him to pump the vessel by hand. They also related that Captain Buddington had made several fruitless attempts to take the Polaris up to Newman's Bay for the relief of the boats, and that the vessel was under anchor at Thank God Harbor. At these tidings Captain Tyson, with the assistance of the two boat's companies, excepting Mr. Chester, who staid with our boat, dragged his boat and provisions to the southwest shore of the bay and secured it in a low land, surrounded by hills and the mouth of a deep and serpentine ravine. this season a torrent, which I think is identical with the river mentioned in Captain Hall's dispatch. Captain Tyson and his boat's crew returned to the vessel overland, while Mr. Chester and company staid, waiting for an opportunity to go either north or south in the boat.

About the middle of July a heavy southwest gale set in, and if we had not departed from our encampment before the high wind increased to a gale we undoubtedly would have been crushed. Mr. Chester, with the boat and crew, at once started for shore. I shall never forget that day; I thought it the hardest of my life, until later on our ice-drift. The canvas-boat, mounted on runners, we would push against the storm, which was strong enough to lift boat and all, and in spite of our exertions to the contrary would carry us backward with the boat. We took the boat apart, so as to offer less surface to the wind; we partly unloaded the sleigh by depositing our clothes-bags and some provisions on the ice; but before we succeeded in reaching shore the bay-ice broke up, and we had to continue our work over drift-pieces and wide cracks of water. Finally we got the boat close to shore, and all hands returned in search of the stores deposited on the ice. By partly swimming across floes we succeeded in finding the deposit, and loading ourselves with some fifty to sixty five pounds each, returned in the same manner, arriving safely on shore, while the boat remained on the ice. We hardly had set foot on shore, at Captain Tyson's depot, when the gale increased still more, the ice left shore altogether, and a removal of the boat to shore was impossible. We erected the tent belonging to Captain Tyson's party, which shortly after it blew down, and we sought shelter in the boat of Captain Tyson. Even with the heavy load of provisions, clothing, instruments, and six men, the boat was to be lifted up by the wind, and rolling on the beach, knocking against rocks so as to break her skin in several places. We therefore capsized her, and putting a small load her loaded her down with heavy stones, and passed the night without protection against the fearful gale. Two days later we all returned overland to the vessel, with the exception of one man, and Mr. Chester, who staid with the intention of taking the canvas-boat back to shore as soon as the ice would return to the beach. When I started for the vessel the hills were bare of snow, with the exception of small patches in the shaded corners of ravines; but when about half way, a snow-storm set

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n and compelled me to take up night quarters in the lee of a small rock. Next morn-
ng it cleared up, and I readily found my way to the Polaris. The vessel was fastened
o a heavy piece of ice; had, during my absence, narrowly escaped from being crushed
y Providence Iceberg falling in; had been aground a number of times, pressed up by
he ice, and was said to be in a very leaky condition.

Captain Buddington intended to direct the vessel south as soon as a lead would occur.
'his took place on the 12th of August; the same day little Francis Polaris, son of Hans
hristian, was born on board the vessel. The Polaris steered west, working through
lack ice, then rounding heavy pack to the north she entered a lead which permitted
er to keep at full speed until next morning, when she brought up against a barrier of
e in Kennedy Channel, to the north of the small island on the west coast, in about
titude 80° 40′ north. Having drifted past the small island, we from 10 p. m. August
3 to 6 a. m. August 14 pressed through heavy pack. At 12 m. of the latter day we again
arted, and making a good progress at full speed of steam we passed by what both Mr.
orton and Hans declared to be Cape Constitution, in about latitude 80° 27′. Cape
onstitution exhibits a peculiar form, and will serve as a landmark not easily forgotten
en by the poorest memory, and I am convinced that Mr. Morton and Hans are per-
ctly sure that what they declared to be Cape Constitution, really is the place named
by Dr. Kane.

At midnight, August 14–15, fog set in and we fastened to a floe, which proved a bar
our further progress. Until August 26 we drifted with the same floe, more or less
uth, then steamed a short distance to northwest and fastened to another heavy floe,
hich, with the vessel, drifted south until October 9, when we found ourselves opposite
orce Bay, about ten miles from shore. Drifting west and south, we entered Smith
rait and soon passed by Cape Alexander.

October 14 was a thick, gloomy day, and on the afternoon of October 15 a heavy
uth and southeast gale set in, which proved disastrous to the greatest part of the
ew. At about 5 p. m. it was reported to Captain Buddington that the ice at the
arboard was setting off; all of us at once went on deck, found matters as stated by
e man on watch, and saw two icebergs, which evidently had caused the separation
the ice; large floes passed by, the ship laboring under heavy pressure, so much so
to make her crack and tremble. Captain Buddington gave orders to heave out on the
all provisions, clothing, and valuable papers, constantly kept in readiness on deck.
that time the vessel was raised to at least six feet from her water-mark.

Part of the crew, Captain Tyson in charge, went out on the ice to collect the
res and carry them to a stronger part of the floe. Working on board, hard and
ady, I finally left the vessel on the stern-line, intending to secure a bundle of books,
ich had fallen close to the floe's edge, and then return to the ship; but while
rying this bundle to a safe place, the ice broke up, the stern-line parted, the bow
ser slipped off the ice-anchor, and the vessel drifted off. Command to pull the
ts over to the remainder of the floe was given, and when accomplished every-
ly picked up whatever he could lay hands on. I jumped back to one of the small
es, endeavoring to find the box containing my papers, but without success, and
ore I could return water intervened between me and the large floe. Seeing the
w close by, two others and myself entered the same, and with a kiak-paddle pro-
led the scow across the crack to the boats. Voices, coming from other small ice
es, were heard, and the scow sent to the relief of those parties; but having shipped
reat amount of water the scow sunk close by the men she was to relieve, her crew
rowly escaping to the ice. One of the boats finally succeeded in collecting all hands
n on the ice upon the large floe. The gale still continued, snow drifted at a furious
e, and darkness inclosed us; the floe continued breaking up at the edge, and a con-
ial removal of our stores was found necessary. We worked hard and steady until
m., when, exhausted, we lay down on the ice, amidst the drifting snow and ex-
ed to the fearful tempest. The papers, which had left my possession, consisted of
following:

Private letters and documents.

Record of meteorological observations, reduced and corrected.

Book of comparisons, for the correction and verification of meteorological instru-
its and observations.

Table of relative humidity and dew-point for indications of the wet bulb, between
nd —50°.

History of the expedition, in journal form.

Meteorological journal, containing a detailed record of occasional observations
short discussions of marked meteorological phenomena.

Astronomical and geodetical observations, including surveys of all land discovered
corrected.

Observations on magnetic declination at numerous localities.

Observations on horizontal intensity of magnetism at Thank God Harbor by the-
ite magnetometer.

Botanical collection of plants between latitude 81° 26′ and 82° 07′ N.

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11. Topographical map of Thank God Harbor and Polaris Bay, secured in a tin cylinder.

The morning following our disaster we found our floe wedged in between an iceberg and Northumberland Island and water apparently leading to the island We made two attempts to reach the island, but in both cases ice intervened. The last attempt was made after we had seen the Polaris rounding Cape Robeson, directing her course to Northumberland Island, and finally disappearing behind the same, without coming to our relief. At this second and last attempt we even had to abandon one of the boats at the opposite edge of the floe, and return to the other boat and provisions.

While on her way from Cape Robeson to Northumberland Island the Polaris once stopped, perhaps engaged in picking up provisions and the papers of Mr. Bryan and those belonging to me. After our second attempt to reach shore a heavy northeast gale set in, and next morning we found ourselves in the middle of the strait and on a small piece of ice which had broken off the large floe. With the large floe we lost the second boat, some provisions therein, a large canvas hut erected previous to our separation from the vessel, and six bags of bread stored in the hut. When the gale abated an inventory of the stores was taken and found as follows: several bags of clothing; several musk-ox skins; thirteen cases of pemican; fourteen hams; some canned meat; a small bag of chocolate; an A tent; instruments and a chronometer.

During the first two weeks of our stay on the ice, while drifting between Northumberland and Wolstenholm Islands, we built snow-huts and lived on seal-meat. Seeing that we might possibly exist during the entire winter even without fire and sufficient food, I ever afterwards nourished the hope of safely arriving at some port of Greenland during the following spring or summer.

The company laboring under such trying circumstances consisted of the following: Captain Tyson, assistant navigator, &c.; Fred. Meyer, meteorologist, &c.; John Heron, steward; William Jackson, cook; E. W. C. Kruger, Fred. Jamka, William Ludeman, Fred. Anting, Gustavus Linguist, Peter Johnson, seamen; Joe Eberby, Hannah, his wife, Punny, his child, Hans Christian and his wife, Augustine, Tobias, Sucei, and Francis Polaris, his children, Esquimaux; in all nineteen human beings.

On October 23, while close to Wolstenholm Island, our large floe was sighted, and at once all hands, accompanied by the dogs, went over to the same on the young ice. In the course of a few days we succeeded in bringing across to our encampment the second boat and provisions therein—six bags of bread, canvas and wood forming the large hut.

On the 28th of October the sun departed to his winter rest, leaving us to the mercy of the dark, dreary winter night. During the month of October the natives succeeded in shooting three seals. On November 1st an attempt was made to reach shore at Dalrymple Island, but we only succeeded to arrive, with boats, provisions, and one kiak, at the large floe, while on October 2 we drifted out off Wolstenholm Sound, and on October 10 we had passed the Carey Islands.

We settled down on the large floe, built snow-huts, and lived on bread and pemican: in all twelve ounces per day, which was warmed with a quart of water on a wood-fire—for firing material we cut up one boat—was issued to us in two meals; the natives whenever the weather would permit, went out hunting. During the month of November they killed five seals. Heavy winds prevailed, and we often were entirely blockaded with banks of drifted snow. On the 30th of November we sighted land, extending south from Lancaster Sound.

The month of December was mild, and we drifted so rapidly south that on December 21 we had light sufficient to read print during four hours of midday, and on December 7 I approximately determined latitude and longitude by α. Cassiopeia to 74° 04′ north 67° 53′ west; several bears and bear-tracks were seen, two white foxes and one seal killed; but in general we lived on the usual allowance of twelve ounces of bread and pemican, warmed up. In order to enable us to issue our provisions by weight, I previously had constructed a scale, by connecting a fine, three-cornered scale (rule) with a lever balance, taken from a broken aneroid, and attaching to the ends of the scale two cords two pasteboard boxes of equal weight; the weights I formed of chamois-skin and shot, taking as unit the weight of the meat contained in a one-pound can, and successively dividing it into half-pounds, four ounces, two ounces, and ounces.

On December 30 we sighted the west coast at a considerable distance. Approximate latitudes and longitudes were determined on January 6 by Polaris and α. Cassiopeia to 72° 09′ north, 60° 41′ west. On January 20, by the same stars, to 70° 02′ north, 61° 01′ west. On January 27, by the same stars and the sun, to 69° 32′ north, 60° 48′ west. On the 19th of January the sun was seen above the horizon during the course of two hours, and very likely had been out the day previous, but obscure to our sight by an iceberg bearing south.

On the 5th of January we had used up one boat, and from that time we warmed our meals on an Esquimaux lamp. January was stormy and cold; during this month we drifted very rapidly, and shot five seals. On February 5 I approximately determined by the sun, our latitude to be 68° 50′, and on February 19 Cape Walsingham

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ıd neighboring land was in sight; preparations for an attempt to reach land were ade, but this plan finally was abandoned, and a reduction of our daily ration to seven nces found necessary, so that our provisions might hold out until the first of April. ebruary was mild but very stormy; during this month we drifted rapidly; six seals d a great number of dovekies were shot; unicorn, bears, and bear-tracks seen. March is stormy and changeable in temperature; during this month a great number of seals, me dovekies, and one bear were shot, and a number of unicorns seen. We lived in a ate of continual anxiety, the ice around us broke up, our floe parted into small pieces til we were confined to a space of about twenty yards in diameter; many nights we red not sleep, fearing the ice would break under our feet and we would find our grave the Arctic Sea.

Finally, on the 31st of March, our encampment became wasted out to such an extent at, on the 1st of April, we took the water, in the boat, endeavoring to penetrate the ck, where we expected to find protection against sea and weather. On the 12th of rch we were in latitude 64° 32′ north; on the 13th in 64° 19′ north; on the 17th in ' 47′ north; on the 22d in 62° 56′ north, and on the 31st in 59° 41′ north; we sighted land during this month. From April 1 to April 4, inclusive, we at times had leads water to south and southwest, which permitted us to proceed by oar and sail several es each day; but April 5 to 20 we staid on one and the same piece of ice, surrounded pack, and laboring under heavy-sea swell, which caused us much anxiety. Fre- ntly we dared not sleep, for fear the ice would break under our feet, or the sea wash off the ice. Several times the ice broke close to the boat and tent, and once ler the tent, while all of us were inside of it eating breakfast. At another time, ile half of us watched and the other half slept, the ice broke between the boat and t, and the general outcry was to stay with the boat; but on looking around I found self alone with the boat, all others having staid with the tent and provisions. I the kiak adrift; but it drifted in a direction opposite to where my comrades were. deavored to push the boat, which was heavily loaded, off the piece of ice; but before I ceeded the two natives, propelling a small piece of ice by a paddle, approached me. I ew out a line, and pulled them up to me. We, all three, succeeded in getting the t off, but I had the misfortune to go with it and fall in the water. Only a short ance from where we had started the boat got beset by pack-ice; after three hours' l work we succeeded in pulling up the boat on a piece of ice half of her size. There staid all night, and I, being wet through, was never before so near freezing to death; my breath for some time, but finally restored circulation of blood by a rapid motion ands and feet. At daylight we saw our comrades and tent about half a mile off. Cap- Tyson and some of the crew came over to us on the pack-ice, and working all together lragged the boat back to the tent; the kiak was found a short distance from the and also saved.

the night from the 19th to the 20th of April we were washed out of the tent, which lost, and we had to cling tightly to the boat during the entire night, or it would been washed off the ice, which actually took place, in carrying boat and men hang- o it from one side of the piece to the other, while ice-blocks three feet square pelted nst the boat and our legs. At last we launched the boat and arrived safely on a l but smaller piece of ice, which did not labor much under the heavy sea. On this the pack-ice again closed around us, and on April 22 our provisions consisted of ten biscuits. Starvation was before the door. Then Providence directed a bear to ncampment, and, while all others hid themselves, Joe and Hans from behind a mock shot the bear. We then crossed over the pack-ice to the place where the breathed his last, fastened a line to him and pulled him to our encampment. From time until finally relieved by the Tigress we had an abundance of meat, which we rally ate raw.

om April 25 to April 30 we had more or less opportunities to proceed by boat, but l on the ice, the sea washing over it, we were compelled to sleep in turns of half umber.

April 28, while proceeding in the water, we saw a steamer crossing our course at distance. The flag was immediately hoisted, but at dark the vessel was out of . Next day we again saw a steamer, launched the boat and proceeded by oar we arrived at a barrier of heavy pack, when we pulled up on a cake of ice, set ls for the steamer and fired shots. Four shots fired from the steamer were heard , and taken as answer to our signal-shots; but herein we were mistaken. Toward ng the vessel was lost out of sight. The morning of April 30 was thick and foggy. ain Tyson, myself, the steward, cook, and natives slept in turn from 12 m. to 5 a. hen we were roused by the watch to take their place; but before we had shaken l drowsiness somebody cried out: "Here is a steamer close by." We all cleared oat just in time to see the fog throwing his dark veil over the vessel so patiently l for. Then Hans had the admirable idea of taking to the kiak and apprising the l of our presence. The flag was hoisted, shots fired, and all hands hailed the ves- the highest pitch of their voices. I am unable to describe the sensation of relief I saw the steamer come to our encampment. All of us were taken on board the ss and treated hospitably.

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April was mild but more or less stormy. During this month I have recorded a number of approximate determinations of latitude: On April 4, 56° 47′ north; April 55° 51′ north; April 12, 55° 35′ north; April 13, 55° 23′ north; April 14, 55° 13′ north; April 15, 54° 58′ north; April 17, 54° 27′ north; April 21, 53° 57′ north; April 28, 53° 30′ north; April 28, 53° 04′ north. The Tigress, a sealing-steamer, pursued her course during the next ten days. She then took us to Bay Roberts, and from there to Saint John's. At Saint John's we remained two weeks, when the Frolic, United States man-of-war, arrived, and returned with us to Washington.

II.—Scientific operations of the expedition.

1.—Astronomical and geodetical observations.

The Bureau of Navigation had provided the expedition with six chronometers, three sidereal ones, and three solar mean time. A daily comparison, made at six hours Greenwich mean time, showed that their relative differences generally kept increasing, according to their primary rate. All comparisons with their first and second differences were recorded in a book which, under charge of Mr. Bryan, would be found among his papers. The chronometers were known by letters as "A, B, C, D, E, and Z," and Z was selected as standard; they were in a gimbal box, which again set in a cushioned box, and were three together inclosed in two wooden, cushioned boxes, which, fastened to the cabin floor, set around the mast, but detached therefrom. Observing some of them on journeys while in charge, I gained some valuable experience. When, in June, 1872, we were on a journey to the north, the boat was crushed in the ice, I succeeded in saving chronometer "D." When gotten from the boat, the outside box was completely crushed and still, when compared with a hack-watch, the chronometer had kept its rate remarkably well. "D," then, was carried overland to the vessel, and forgotten to be looked a comparison at its arrival showed a loss of nearly thirty minutes. Taken out again the canvas-boat, our long stay on the bay-ice of Newman's Bay gave me an opportunity to ascertain the rate of "D" by observations on the prime vertical. In this manner found that although "D" had a larger daily loss on the ice than on board, this daily loss would remain the same while on the ice. When finally compelled to return shore during a southwest gale, "D" was left on a piece of ice, and during the storm exposed to the action of the waves, so that, when gotten the next day, the chronometer was found reversed; but compared with a hack-watch, the chronometer showed to have preserved its ice-rate.

A.—Astronomical observations at winter-quarters.

Preliminary observations, with sextant and artificial horizon, for latitude and were made on shore of Thank God Harbor the day following our arrival by Captain Hall, Mr. Bryan, and myself; carefully computed, and using the primary rate of chronometers, the position was found to be 81° 38′ north, 61° 44′ west—seconds I do not recall.

During the winter, observations for latitude were made upon stars, both north and south of the zenith, with sextant and artificial horizon, whenever the weather permitted to do so. After the sun's rise in spring a great number of equal altitudes near the prime vertical and of meridian altitudes, both upper and lower culminations, were taken with sextant and artificial horizon, as also with the theodolite. A great number of the moon's altitudes were taken whenever this satellite was visible. The transit instrument was set up at the observatory (see pl. I. T.,) on a stout piece of plank, which rested on two trestles, their legs being sunk into the ground and frozen tight, and passing through the floor without touching it. All constants were not known, but could be found, with the exception of the division value of the level, which finally was determined in the following manner:

I. The height of a great number of threads of the screw, acting vertically upon the rotation axis, was measured, and thereby the height of one thread found.

II. The length of the level measured.

III. The inclination of the level, corresponding to the height of one thread, found by

$$l \sin x = h.$$

l = length of level.

h = height of one thread of the screw.

x = angular value of level inclination corresponding to h.

IV. Division value of level determined by finding the number of turns of the screw corresponding to one division of the level.

The instrument, once set up in close approximation to the meridian, remained stationary, but the azimuth correction was observed for at the beginning and close of each set of observations by transits of stars of twelve hours' difference in right ascension, one cumpolar and one equatorial. A great number of level-readings (reversals) were taken before and after each set of observations; but frequently the difficulty arose that

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bubble could not be made sufficiently small. Transits were timed by sidereal chronometer "A," which constantly remained at the observatory, fastened in a box to the transit-stand; a meridian mark was not established. Moon transits were observed at all occasions; also several occultations are on record. A great number of lunar distances, especially such measured from the sun, were taken. The index error of a sextant generally had to be determined before and after each set of observations, as great irregularities, caused by change of temperature, were observed. The repeating circle was used at times, but very seldom.

B.—*Astronomical observations on sea and in ports of Greenland.*

Between New London and Saint John's a great number of sun's altitudes were measured by Captain Hall for latitude and longitude. At Saint John's one of the chronometer-watches was compared with a chronometer which had been rated shortly before, and this comparison recorded. Between Saint John's and Fiskenaes a great number of determinations of latitude and longitude by sun's altitudes were made by Captain Hall and myself, as also between Fiskenaes and Holsteinborg. At Holsteinborg two sets of observations for longitude, by sextant and artificial horizon, were obtained by Captain Hall and myself. All four sets when computed resulted in one and the same longitude within one second of arc. Captain Hall also obtained an observation for the latitude of Holsteinborg. Observations for latitudes and longitudes between Holsteinborg and Godhavn are recorded, and at Godhavn Captain Hall obtained several sets for both latitude and longitude. At Upernavik observations with sextant and artificial horizon were made by Mr. Bryan and myself. Altitudes on the meridian and about four hours from the meridian were selected. At Tessiusak Captain Hall, Mr. Bryan, and myself made determinations for latitude and longitude. Between Tessiusak and Thank God Harbor a great number of sun's altitudes, for the determination of latitudes and longitudes, were made. The last observation on sea was made for latitude by all persons capable, and for longitude by Captain Hall and myself; the result I think was 81° 24′ north, 64° 35′ west. Between Thank God Harbor and Northumberland Island a great number of observations on latitude and longitude, with sextant and artificial horizon, were made by Mr. Bryan and myself. Those made by me while drifting in Smith Sound are now in my possession, and, together with bearings of headlands, appended in Paper I; they generally are taken on the prime vertical, so that latitude and longitude deduced therefrom refer to one and the same position. In Paper I, I give resulting latitudes and longitudes, having applied the primary correction and rate of chronometer "Z" from memory.

C.—*Astronomical and geodetical observations, forming a series of systematic surveys.*

Thank God Harbor and Polaris Bay were surveyed by me in September, 1871, with the theodolite and plane-table. The plane-table was constructed under my supervision by Mr. Shuman, first engineer, in the following manner:

I. A drawing-board was mounted upon the tripod, sent with the dip-circle, by a center clamp-screw.

II. The round level of a chemical scale was detached therefrom, to be used in leveling the plane-table.

III. A round compass was sunk into a four-cornered elongated box, so that a line connecting N and S of the graduated arc would be parallel with the side of the box.

IV. The telescope sent for observations of pendulum transits was mounted upon a metal rule, so that when placed upon a horizontal plane the telescope-axis would be parallel and in a vertical plane with one edge of the rule.

Before the commencement of operations with the plane-table, I obtained the co-ordinates of three marked field-points by using chain and theodolite. All points are referred to the position "Observatory." I then entered upon the plane-table the three points mentioned above, and point "Observatory," where I took my first station. The table leveled and brought into parallelism with the field, a line marked "N" and parallel with the connection of N and S of the graduated arc of the compass-box and the N and S of the needle, was drawn, as also sight-lines to all points desirable to be taken on by the survey. The second station was taken three or four miles from the first, the table leveled, the box-compass applied to line marked "N," and the table brought into approximate parallelism with the field. Then cutting in backward, a small triangle would be obtained in place of the correct station-point. This station-point had to be either to the right or to the left of all sight-lines forming the triangle, and its distances from these sight-lines had to be in proportion with its distances from the field-points employed in forming the triangle, therefore a simple geometrical construction would furnish the correct station-point, when the table could be brought accurately into parallelism with the field; sight-lines to all points, taken in at the first station, would be drawn, &c.

For the verification of this plane-table survey, I determined a point "D" twelve

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miles from observatory, with the theodolite and chain, and found a sensible agreement of its determination by theodolite with that by the plane-table.

As soon as the survey of Thank God Harbor and Polaris Bay was completed, I drew an elaborate topographical map of the same before the disappearance of the sun.

During the spring and summer of 1872, I made surveys of the east side of the channel from latitude 80° 27′ north to 82° 21′ north; of the west side of the channel from latitude 80° 15′ north to about 84° north; of the interior, between Newman's Bay and Polaris Bay, of Newman's Bay, and to some extent of the interior northeast of Newman's Bay. All these surveys were executed by taking up a great number of stations at Polaris Bay, Newman's Bay, and intermediate points, determining their latitude, longitude, and magnetic declination by theodolite, and taking magnetic bearings to all points desirable to be taken in by the survey. In this manner between 300 and 400 points were determined and known by numbers. Sketches of coast-lines and hill-ranges, to serve as a basis for the detail of a topographical map, were also made. When, while going north, our boat was crushed in the ice, I lost the theodolite, and ever afterwards I took the bearings with a large azimuth circle, taken off a large prismatic compass. This azimuth circle, supplied with a vernier and sight-vanes, I mounted upon a tripod, and leveled it with a round level. Determinations of latitudes and longitudes had to be made with sextant and artificial horizon; for determination of magnetic declination, a prismatic compass was employed. In July, 1872, I visited the north side of Repulse Harbor, made observations for latitude and longitude with pocket-sextant, using sea-horizon, and measuring the elevation by aneroid. I then saw the west side of the channel bending to the south of west in about latitude 84° north, and the east side of the channel to the south of east in about latitude 82° 21′.

Repulse Harbor's latitude is about 82° 09′ north; its longitude between 58° and 59° west. The Southern Fjiord was to some extent surveyed by Mr. Bryan in the spring of 1872; its head has not been seen; and, when passing its entrance in the fall of 1872, on our route home, I was impressed that the Southern Fjiord was a channel in reality, and perhaps connected with "Emperor Joseph's Fjiord" of the German expedition. "Lady Franklin's Bay" also appears to be the junction of two channels separated by an island. While on our home route Cape Constitution was recognized by Mr. Morton and Hans. Observations made in its vicinity proved its latitude to be about 80° 27′ north. While drifting through Smith's Sound, a great number of astronomical observations, in connection with bearings to headlands, were made by Mr. Bryan and myself; those made by me are now in my possession, and appended in Paper I. On our voyage north, as well as our voyage south, it generally was felt that the west side of the channel, as laid down in Dr. Hayes's map, needed considerable alteration; not in the detail of the map, but in latitudes, longitudes, and general direction of coast line. Kennedy Channel at parts is very narrow, especially in the vicinity of Cape Constitution, where its width hardly exceeds from fifteen to twenty miles. Cape Ritter Bay, on Dr. Hayes's map, the northern extremity of Kennedy Channel, really is the southern extremity; the two sides of Kennedy Channel consist of land, which is mapped neither by Dr. Kane nor Dr. Hayes; the direction of "Humboldt Glacier" very likely, is not north and south, but northeast and southwest, &c. In plan II I append a diagram of Smith's Sound, Kennedy Channel, Polaris Bay, Robeson Channel, and of the west coast to about latitude 84°. All records of astronomical and geodetical observations would be found partly among Mr. Bryan's and partly among my own papers. During the winter of 1871 to 1872, I constructed the ship's track between New London, latitude 82° 16′, and Thank God Harbor. The Polaris before she started had not been swung and her compass deviation therefore was unknown.

As from St. John's to latitude 82° 16′ our mean course was north, I approximately determined the deviation by merely computing the position in which the log, without the use of any deviation, would locate Fiskenaes at; the angular value of distance "computed position and real position of Fiskenaes," with radius equal to distance "St. John's and Fiskenaes" furnished the deviation which in proceeding north varied proportionally to the tangent of the magnetic inclination. The limits of sea-currents I could very well determine by the change of surface sea-temperature, and by the combination of all meteorological instruments motion. It is very interesting that the state of atmosphere over the Labrador current, between Newfoundland and St. John's, as indicated by the combination of all meteorological instruments, is so marked and peculiar that I afterwards was enabled, without using the sea-thermometer, exactly know when we entered the Labrador current between St. John's and Greenland, when we arrived at its center line, and when at its northern limit. In a similar manner I had all other currents indicated, compass deviation and limits of currents determined; the velocity of currents was found by dead-reckoning; astronomical observations made at latitude 81° 24′ north; longitude 64° 35′ west, and Thank God Harbor served as verification.

2.—MAGNETIC OBSERVATIONS.

A.—Differential observations, for the determination of diurnal variation of magnetic declination, were made at the observatory of Thank God Harbor. The theodolite was

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meter was used therefore in the snow-hut "M," (pl. I,) upon a stout wooden
d, which was solidly frozen into the ground; a thermometer was suspended from
stand. When first the instrument was set up, and the line of detorsion brought in
cidence with the magnetic meridian, it remained undisturbed during the course of
or five months, when hourly readings were taken by Dr. Bessels, Mr. Bryan, and
lf, besides readings, at five minutes interval, on term days, prescribed by "Ridell,
During these observations the collimator magnet was suspended in a stirrup,
tructed by Mr. Shuman, the original stirrup having been lost when the gale of
mber 22 blew down the snow-hut; only a single fiber was used during these ex-
nents. The disturbances were large and frequent; and therefore the record of
ential observations consists of scale readings, azimuth-circle readings, and ther-
etric readings, and is kept in one book, which will be found among Mr. Bryan's
rs.
—Observations on absolute magnetic declination were made by Captain Hall at
avn and Thank God Harbor by prismatic compass, sextant, and artificial horizon.
ain Hall also recorded a great number of the sun's bearings with the course of the
l while between Tessinsak and Thank God Harbor. Mr. Bryan made determina-
of absolute declination at Thank God Harbor by theodolite magnetometer, and
theodolite, and, while drifting in Smith's Sound, by prismatic compass, sextant,
rtificial horizon. His determination at winter-quarters with the theodolite mag-
neter was made by reference to two very marked field-points, to which he had
ured a great number of solar bearings. I made determinations of absolute decli-
n by either small theodolite or prismatic compass, sextant, and artificial horizon,
ank God Harbor, Polaris, and Newman's Bay, as also at a great number of inter-
ate points. While drifting in Smith's Sound I determined the declination at all
when recording magnetic bearing of marked headlands. Captain Hall's observa-
on magnetic declination are among his papers, and undoubtedly on board the Po-
Mr. Bryan's determinations were in his box thrown on the ice, and are probably
on board the Polaris. Determinations made by me were in my box, and may also
nd on board the vessel. The observations made while drifting in Smith's Sound
ow in my possession, and will be found appended in Paper I. Declination at
k God Harbor was about 96° west. Mr. Charles A. Schott, before the expedition
d, prepared a map exhibiting the isogonic lines in the vicinity of the north pole,
cannot but state that Mr. Schott's isogonic lines almost entirely coincided with
based upon our observations.
-Observations on relative magnetic intensity were made repeatedly at Thank God
or by Mr. Bryan, and will be found among his papers.
ervations on absolute, magnetic, horizontal intensity were made by me in the
r of 1872, at Thank God Harbor, and consist of—
eral sets observations on the zero divisions of collimator magnet and week mag-

eral sets of vibrations with and without ring-weight.
he exact weight of the ring, found with a very sensitive chemical scale, and its
sions.
eral sets of deflections at two distances.
etermination of the scale value of the collimator magnet.
sets of vibrations are accompanied by observations on the co-efficient of torsion.
observations extend over the period of about eight days or longer, and their
will be found among my papers. During these observations the magnet, then
original stirrup, which had been recovered in spring, was suspended on three

Observations on magnetic inclination were made by Mr. Bryan with the dip-circle
siusak, Thank God Harbor, and Southern Fjiord. At Thank God Harbor the in-
on was determined very frequently, and all observations were recorded by Mr.
among whose papers they will be found.

3.—OBSERVATIONS ON THE FORCE OF GRAVITY.

ng our stay at winter-quarters the pendulum was swung on the same
dges as previously at Cambridge and Port Foulke. Transits of the lower
dge over the vertical hair of a telescope, set at a distance of about twelve feet
cidence with the zero of the graduated arc, were observed by Mr. Bryan and
relieving each other, while Dr. Bessels timed the signals given by the observers
transits. The azimuth of the plane of vibration was nearly north and south;
e of the pendulum apparatus, placed at P (pl. I,) rested upon heavy planks,
were frozen into the ground; it was carefully detached from the floor and wall
observatory, and supported by three steel braces, one in the back and one on
le. The plane supporting the knife-edge was kept carefully leveled; the semi-
unted from the middle either way, frequently recorded, as also the readings of
ronometers, placed respectively at heights of the lower and upper knife-edges.
of transits were marked by sidereal chronometer "A," whose rate was observed

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for, before and after these pendulum experiments, by Mr. Bryan. All four faces were swung in strict compliance with the manuscript instructions prepared by Mr. Charles A. Schott. The readings of barometer are furnished by the meteorological record.

The record of our pendulum observations when completed was placed in the hands of Dr. Bessels, and undoubtedly is now on board of the Polaris; the pendulum itself will also be found at the vessel.

4.—OBSERVATIONS ON OCEAN PHYSICS.

A.—*Observation on depth.*

Soundings were made in latitude 81° 24′ north, longitude 64° 35′ west, and at a great number of positions in Smith's Sound. The record of two soundings in Smith's Sound is now in my possession, and, together with bearings of the positions to known headlands, appended in Paper I. The record of all other soundings is among Dr. Bessels's papers.

B.—*Examination of sea-bottom, procured by either dredges or soundings.*

Dredges were made at St. John's, and surface-dredges on the greatest part of our route between Tessinsak and Thank God Harbor.

Sea-bottom was taken up with each sounding. All dredges and portions of sea bottom were examined by Dr. Bessels; the results of these examinations are recorded among his papers.

C.—*Observations on sea-temperature.*

Surface sea-temperature was observed by Dr. Bessels and myself between New London, latitude 82° 16′ north, and Thank God Harbor, as also, while returning, between Thank God Harbor and Northumberland Island, at most times hourly, but sometimes every three hours. They are very interesting and instructive in defining currents. Sea-temperatures at the bottom and intermediate points were recorded whenever an opportunity was offered to observe them.

The Miller-Casella's deep-sea thermometer proved useless when exposed to the colder waters and climate, the transparent liquid contracting disproportionately. All observations on sea-temperature are recorded, together with the systematic meteorological observations, and are among my papers; Dr. Bessels has an extract of sea-temperature observations.

D.—Observations on the density of sea-water simultaneous with observations on sea-temperature by hydrometrical measurements were made by Dr. Bessels and myself. Dr. Bessels also had a number of sealed bottles filled with sea-water of different localities and intended for chemical analysis.

E.—*Observations on currents.*

As I have stated above, the observations on currents were not directly made, but indirectly, by observations of sea-temperature and meteorological observations; the velocity of currents could be deduced from the log. Along the coast of Greenland, at the season of July and August, observations on sea-temperature give very interesting indications. The sea-thermometer gives proof of a continual variation of surface sea-temperature, nearly equidistant from the temperature of maximum density of salt-water. Per example: at one locality we find the temperature +43°; not far from it we find it +35°; this shows that surface and under currents are interminglings, caused by their almost equal specific gravity.

Crossing Smith's Sound, and getting within the vicinity of the west coast, we met a cold current, directed to the southwest, which, higher up in Kennedy Channel, Polaris Bay, and Robeson Channel, was noticed to take up the entire width of the straits. The direction of this current was beautifully illustrated by a line of icebergs seen in Smith's Sound, bearing northeast and southwest. The velocity of the current I computed from the log, making use of our observations of latitude 81° 24′ north, 64° 35′ west, and found it to be nine miles per day. This was afterwards verified by the computed distance between the position the vessel got beset in and the position she broke out at, giving thirty-six miles for a four day's drift. The position she got beset in depended upon the observations of latitude 81° 24′ north, longitude 64° 35′ west, and the log; the position she broke out at depended upon Thank God Harbor and the log.

F.—Tidal observations were made at Thank God Harbor by some of the seamen with a tide-guage, constructed on Dr. Hayes's plan. These observations extend over the entire winter, from September, 1871, to June, 1872, are made at times every ten minutes or half-hourly, or hourly, and their record is among Dr. Bessels's papers.

The rise and fall of the tide is small; the age of the tide nearly twenty-four hours

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5.—METEOROLOGICAL OBSERVATIONS.

A.—*Observations on atmospheric pressure.*

uring the voyage from New London to Thank God Harbor, observations were made ry three hours with a marine barometer and an aneroid; both instruments were t compared with Green's standard barometer, No. 739 (?); the indications of the ometer were very marked over every branch of a cold current, as also their gradual ease and decrease in approaching or distancing the parallel of maximum pressure. instruments were kept in a shelter, fastened to the port side of the wheel-house, their indications corrected for temperature, elevation, and instrumental error. At ter-quarters observations on atmospheric pressure were made hourly at the observ- y with Green's standard barometer, No. 739 (?), and were corrected for tempera-, elevation, and instrumental error. The elevation above the mean level of the sea termined in the fall, and again in the spring, by the theodolite, and I constructed, aplace's formula, a table giving the correction for said elevation at temperatures n +50° to —50°. All the barometers in the possession of the expedition I kept care- compared; it frequently was found necessary to clean the mercury of No. 739 (?); ll such occasions comparisons were made before and after its cleaning.

ne motion of the barometer-column was very marked, with northeast and south- t winds, being very fluctuating and generally high, but falling with a northeast l, and very low, but rising with a southwest wind. These indications are very sig- ant, and varying according to season. In the fall, when an immense quantity of sture is precipitated from the higher regions in form of fogs, frost, smokes, snow, and ation of fresh-water ice on the sea, the barometer is very low; the same in spring, n active evaporation of snow, ice, and water is going on. Between Thank God bor and Northumberland Island hourly observations were made and corrected. A ber of measurements of elevations by aneroid I made at and between Polaris and man's Bay. Before I left Washington I compared Green's No. 739 (?) with the bu- standard and Naval Observatory barometer.

—Observations on temperature were made every three hours on our voyage north, y hour on our voyage south, and at winter-quarters.

ter my separation from the vessel I made some notations of temperature, which ppended in Paper II. On our voyage north the influence of cold sea-currents over spheric temperature was especially marked. On several other journeys, it was al- observed that ice will form on the salt-water whose temperature is below 32°, even n the atmospheric temperature is +40° and higher. This ice-formation is congealed -water, which partly melts off the surface of drifting ice and partly condenses on from atmospheric moisture. At winter-quarters I operated very carefully, in r to get true observations of atmospheric temperature. As soon as practicable our arrival at Thank God Harbor, I made at the observatory a long series of com- ons, at different temperatures, of all thermometers on board. Green's thermome- after application of their correction, previously determined at Washington, agreed st to the tenth of a degree; especially two mercurial thermometers, of which I ted one as standard. Casella's thermometers showed more or less irregularities, h, I think, was caused by their being encased in wooden frames. A great number ermometers were suspended in the shelter "5," pl. (1,) on a revolving drum of e-work. The temperature was noted always by the standard, but at the freezing ne mercury all thermometers in the shelter were registered, corrected according to ious comparison, and the most probable temperature of the melting of mercury ced. The melting-point of mercury, by repeated operations, as described above, found —39°.8. One of Green's spirit-thermometers most correctly showed the erature of melting of mercury by applying the correction found from previous parison. This thermometer I selected for the notation of atmospheric temperature v melting of mercury. Very annoying, in regard to the observation of thermome- was the almost continual snow-drift, which, besides burying the thermometers en- , almost blinded the observer. I am astounded how quick a tolerable observer, under such difficult circumstances, will acquire the routine of just bringing the of a lantern to bear upon a thermometer, and reading it correctly to one-tenth degree during the period of one second. At Thank God Harbor the highest tem- ure observed was between +40° and +50°; the lowest temperature, —58°, oc- d in January, but March was the coldest month.

the fall, with a northeast wind, the temperature would rise; with a southwest, it d fall. In spring a northeast wind would be preceded by high temperature, de- ing after the northeast wind had set in; a southwest wind in spring was preceded w temperature, rising after the wind's arrival. In winter a northeast wind pre- l by low temperature would produce a slow rise; a southwest wind preceded by emperature would produce a rapid rise of temperature.

—Observations on winds were made every three hours on our voyage north, every on our voyage south, and at winter-quarters. The direction of winds on board of

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the vessel was determined by comparing it with the compass and application of magnetic declination. The velocity of winds was found by the anemometer erected on the quarter-deck, port side, or the current meter whenever the former was obstructed. Between St. John's and New London one cup of the anemometer was carried overboard, and as I wished to reserve one anemometer for winter-quarters observations, I continued the observation of the anemometer, running on three cups, and deduced true velocities from its indications by the formula—

$$V_x = V \frac{4\,W}{3\,W_x}$$

which I constructed in the following manner:

Let

P represent the force of wind, in pounds, on a square foot.
L resistance of atmosphere upon one cup during one revolution.
R friction at spindle while in motion on four cups.
R′ friction at the spindle while in motion on three cups.
a area of the half-sphere, forming the concave slide of a cup.
b area of the base of the cup.

During one revolution of a cup, the direction of the wind forms with the base of the cup all consecutive values of angles, (from 0° to 360°,) and therefore the force exerted upon a square foot of the cup at any time is expressed by—

$$P \sin z$$

but during half a revolution the wind exerts its force upon *a*, and during the other half upon *b*; expressing the differential of *z* by *d z*, and the entire force exerted by the wind upon one cup during one revolution is equal to—

$$\frac{P f \sin z\, d\,z\,(0—180)}{d\,z} \cdot a + \frac{P f \sin z\, d\,z\,(180—360)}{d\,z} \cdot b = \frac{2\,P\,(a—b)}{d\,z}$$

and upon four cups, equal to—

$$\frac{8\,P\,(a—b)}{d\,z}$$

this force is diminished by the resistance of atmosphere 4 L and friction R, and the total force in action becomes—

$$\frac{8\,P\,(a—b)}{d\,z} — (4\,L + R)$$

In a similar manner, the total force in action upon three cups is equal to—

$$\frac{6\,P\,(a—b)}{d\,z} — (3\,L + R')$$

But, according to the law of inertia, two forces are proportional to the masses they set in motion; and also to the velocities they communicate to said masses. Expressing the mass or weight of four cups, stems and center-piece by W_x; the weight of three cups, stems and center-piece by W; the velocity of four cups, under pressure P, by V_x; the velocity of three cups, under pressure P, by *v*, we will have the equation—

$$\frac{\frac{8\,P\,(a—b)}{d\,z} — (4\,L + R)}{\frac{6\,P\,(a—b)}{d\,z} — (3\,L + R')} = \frac{W_x\, v_x}{W\, v}$$

transforming—

$$\frac{8\,P\,(a—b) — (4\,L + R)\,d\,z}{6\,P\,(a—b) — (3\,L + R')\,d\,z} = \frac{W_x\, v_x}{W\, v} \quad \text{or}$$

$$\frac{4}{3} = \frac{W_x\, v_x}{W v} \qquad \frac{v_x}{v} = \frac{4\,W}{3\,W_x}$$

considering that the velocities of the cups at any time are proportional to the indications of the anemometer, and if we express the indications of the anemometer while running, respectively, on four and three cups, and under influence of pressure P, by V_x and V, we have—

$$\frac{V_x}{V} = \frac{v_x}{v} = \frac{4\,W}{3\,W_x} \qquad V_x = V \frac{4\,W}{3\,W_x}$$

At winter-quarters the direction of the wind was determined by reference to marked field-points, whose true bearing was known accurately. The anemometer was erected

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about fifty yards from the observatory, free of obstruction; the velocity of wind was
arly determined, and the number of miles for the preceding hour noted also.
n cases of doubtful observations or very light winds, the current meter was besides
ught into action. Anemometers were always kept in the best order; Mr. Sherman,
engineer, repaired the spindles several times by replacing the brass tops by steel
s. Frequent comparisons of anemometers and current meter were made. The prin-
l direction of high winds and gales at Thank God Harbor was northeast in fall
spring, and northeast and southwest in winter; the entire winter was almost a
inuation of heavy gales.
ortheast gales showed different features, and, as it appears, these characteristics
e very marked, if I distinguish two classes of northeast gale:
Such as were the primary impulse of a violent commotion of atmosphere, inducing
uthwest gale at an adjacent place.
Such as were induced by a southwest gale in action at an adjacent place.
is evident that in the arctic regions, where sea channels and streaks of land follow
gular order, polar currents will always select their paths, either on land or on sea,
cordance with the greatest tension of atmosphere, dependent upon the season;
will induce a southwest wind, which, on the contrary, selects its path wherever the
the most rarefied; a mutual displacement takes place, and two gales blow in op-
e directions at adjacent places. This frequently was actually observed at Thank
Harbor and vicinity.
re are the characteristics of the two classes of northeast gales:
ien a primary impulse, a northeast wind was always preceded by high atmos-
c pressure, low temperature, and almost entire absence of moisture; veerings at
ommencement and close of the gale were in accordance with the law of gyration.
ig the gale the barometer would fall, the thermometer would rise, and relative
dity increase.
ien a secondary action, a northeast wind was preceded by low atmospheric pres-
high temperature, and low relative humidity; veerings before and after the gale
place contrary to the law of gyration. During the gale the barometer would rise
y, temperature would almost remain stationary, and relative humidity would
ise rapidly.
*t*hwest gales also had two different characteristics:
'receded by low barometer, high temperature, and relative humidity; veerings
and after the gale, in accordance with the law of gyration; rise of barometer,
thermometer, and stationary relative humidity during the gale.
'receded by low atmospheric pressure, high temperature, and low relative humid-
'eering before and after the gale, contrary to the law of gyration; rise of barom-
all of thermometer, and rapid rise of relative humidity during the gale.
ocities above forty miles per hour were very frequent; light and pleasant winds
observed from all points of true bearing.
r my separation from the vessel, I frequently noticed the direction of the wind,
notations I append, in Paper II.
Observations on clouds were made at times of systematic observations; forma-
similar to those known in our climates, were noted; strata were prevalent, and
rus cloud was seen in the region of cumuli.

E.—*Observations on precipitations, &c.*

ipitations in form of heavy snow or rain were rare, but very frequent in the
fog, frost, smoke, haziness, and light snow. It frequently was observed during
nmer that when moisture was precipitated over an area consisting partly of
id partly of ice, it would take the form of rain on land, but the form of snow on

Observations on ozone were made daily; no ozone was obtained on our voyage
more or less ozone was noted at winter-quarters, and some on our voyage
At winter-quarters, and during the winter, the greatest amount of ozone was
d with northeast winds, but especially with heavy snow-drifts. During the
ozone was very abundant, and decreasing in the fall.

G.—*Observations on solar and terrestrial radiation.*

ngs of the vacuum black-bulb thermometer and the free black-bulb thermom-
re taken hourly in 1872, while the sun was above the horizon.
thermometers, after a rigorous comparison with the standard, I placed in a
tal position on crutches, about half a foot above the ground, where I spread a
canvas, thickly covered with cotton wadding.
vations on terrestrial radiation were made hourly, at Thank God Harbor, with
bulb spirit-thermometer, which, after comparison with the standard, I placed
izontal position on crutches, its bulb immersed in cotton wadding.
ed bulb spirit-thermometer was placed in a horizontal position, its bulb in the
a silvered concave mirror, and frequently observed.

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The vacuum solar radiation thermometer at times showed above + 100°.

The terrestrial radiation thermometer at times showed close to — 70°. Condensation of moisture on instruments placed out-doors in form of beautiful crystals, (arabesques,) took place quite frequently.

H.—*Observations on crystallization of snow.*

All snow-crystals consisted of hexagonal prisms, either single or in numbers, arranged to forms similar to those observed by Scoresby and Belcher. When single they frequently were deformed, and quite frequently different forms were precipitated simultaneously.

I.—Observations on moisture with the psychrometer were made every three hours on our voyage north; hourly, on our voyage south. At winter-quarters I took special care to operate in such a manner as to enable me to keep an hourly continuous series of observations on relative humidity and dew-point. In order to judge such observations as to their accuracy, and to operate accordingly, it was necessary to once construct a table exhibiting relative humidities and dew-points, at temperatures between 0° and — 50°. This I executed in the following manner:

1. I computed the elastic force of vapor of saturated air for every tenth of a degree, by the exponential formula:

$$\log e = a - bA^x - cB^x$$

$$\log A = 1.9940493 \quad \log b = 0.1397743$$

$$\log B = 1.9983438 \quad \log c = 0.6924351$$

$$a = 6.2640348.$$

which formula represents best Regnault's entire experiments on the elastic force of vapor of water.

2. The elastic force of vapor, corresponding to readings of the psychrometer, I computed by—

$$x = f - \frac{14.256\,(t - t')}{1240.2 - x\,t'}$$

3. Corresponding relative humidity found by—

$$r = \frac{f\,100}{F}$$

4. Corresponding dew-points found directly from results of (I.)

I then prepared a spirit-psychrometer by cutting off the lower part of the frame of the two best Casella's spirit-thermometers, to bring their bulbs under perfect exposure to the air. A thin muslin was tied to one of the bulbs, and both thermometers were rigorously compared with the standard by which their relative correction, difference of indications, were accurately ascertained. During the entire winter hourly observations of the psychrometer were made, and the relative humidity and dew-point deduced therefrom in the manner shown by the following example:

Reading of standard	— 20.3
Correction to naval standard	— 0.4
True temperature of atmosphere	— 20.7

A. Reading of dry-bulb.	B. Reading of wet-bulb.
— 21.2	— 21.3
	Difference of A and B when dry — 0.3
	— 21.6
	— 21.2
	Difference of dry and wet-bulb + 0.4
	— 20.7
	True temperature of wet-bulb — 21.1

Entering the table, previously constructed, with temperature of wet-bulb = — 21° and difference of dry and wet bulbs = 0.4, the corresponding relative humidity and dew-point would be found immediately. I frequently experimented with Regnault's dew-point instrument for the verification of psychrometer observations, having

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ously ascertained the relative difference of the two thermometers of the instrument
rigorous comparison with the standard.
The following example will show how, from the indications of the instrument, I de-
iced the true dew-point:

Reading of standard.	— 23.4	Reading of dry thermometer.	— 25.2
Correc'n to naval stan'd	— 0.4	Temp. of atmosphere	— 23.8
True temp. of air.	— 23.8	Correction of dry thermometer	+ 1.4
Reading of wet thermometer			— 27.8
Difference of dry and wet bulbs, when both dry			— 0.7
			+ 1.4
True dew-point			— 27.1

simultaneous observations of psychrometer and dew-point instrument, when re-
ed in the described manner, resulted in values of the dew-point never differing by
re than 0°.5.
The general features of atmospheric moisture at Thank God Harbor are very marked.
fall almost perfect saturation took place by the gradual precipitation of moisture
umulated in higher regions; in January almost entire dryness was observed, and
pring a rapid increase of relative humidity is on record. The fluctuation of moist-
, in relation to certain winds and atmospheric pressure, I have already described.
.—Experiments on atmospheric electricity were made during the winter, but with-
result. Both instruments used, a gold-leaf electroscope and an electrometer, con-
icted especially for the expedition, were very sensitive and were frequently hoisted
pole to the height of from twenty to thirty feet, but without result. I afterward
structed a collection apparatus similar to the one first described by Romershausen,
permanently connected the same in the proper manner with the electroscope.
arrangement would enable the observer on watch to at once notice the presence
tmospheric electricity. I frequently tested this apparatus by applying an electri-
glass cylinder, when the gold-leaf would immediately diverge. The collection ap-
atus was mounted on a pole, twenty-five feet high, and properly insulated; the
troscope had a ground connection by which it could be switched off.
—Auroral phenomena were of frequent occurrence in latitudes between 50° and 65°
h, and very brilliant; rare in latitudes between 65° and 75° north, and frequent at
er-quarters, but faint, and only exhibiting white light. The general characteris-
of aurora at Thank God Harbor were one or more continuous arches of perfectly
e light and faint streamers, which were observed at almost all points of true bear-
These streamers at most times were observed directly opposite the true bearing
e sun, then below the horizon. Luminous appearance of the heavens in a similar
ion to the sun was also very frequent, and, after a prolonged discussion of the sci-
ic members of the expedition, classified as aurora. Only one complete aurora,
ing three different coronas and of a rosy tint, is on the record of Thank God Har-
This auroral display took place in the evening of some day of February, 1872,
ig the morning of which fluctuations of the needle, through about 12°, were ob-
d; smaller disturbances were observed during the display. This aurora un-
tedly is identical with the great aurora of February 4, 1872, as it is the only red
een by us. Not being in possession of an instrument, observations on the auroral
rum could not be made. At times haziness and slow precipitation of very minute
-crystals accompanied auroral displays. Experiments on the fluorescence of the
a have not been made.

M.—*Observations on height of twilight arcs.*

ilight arcs were observed even when the sun had its greatest south declination;
uration of twilight was always recorded. I also made several measurements with
extant of the height of the twilight arc, but not as frequently as I would have
d to do, had the light and state of atmosphere been more favorable in rendering
rc sufficiently distinct for measurement. This measurement, when compared
the sun's declination, always showed an 18° distance of the twilight arc from the

N.—*Optical phenomena.*

ages, halos, parhelia, and paraselene were of frequent occurrence; observations on
olarization of light of the sky could not be made for want of an instrument.

O.—*Observations on meteors.*

reat number of shooting-stars were observed, especially in November; several
; meteors are on record.

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P.—*Miscellaneous observations.*

The line of perpetual snow must be placed above the height of 1,700 feet, as in July, 1872, I found such an elevation entirely bare of snow.

Observations on evaporation were made, but had to be abandoned on account of condensation of atmospheric moisture and snow-drift.

Minute drops of mercury froze as readily as large masses.

After our arrival at Thank God Harbor I selected the times of observation, so that three of them were taken, respectively, at 7.35 a. m., 4.35 p. m., and 11.35 p. m., Washington mean time.

On our voyage north, all observations were made by Dr. Bessels and myself, relieving each other in eight-hour watches. From our arrival at Thank God Harbor until the middle of January, I observed the instruments during sixteen hours and Dr. Bessels during eight hours.

By the middle of January I considered Mr. Mauch, whom I had instructed in making observations, sufficiently advanced, and ever after Dr. Bessels, Mr. Mauch, and myself took eight-hour watches.

The complete meteorological record, corrected and reduced by me, the book of comparisons, table of relative humidity, meteorological journal, &c., were among my papers.

An incomplete copy of the meteorological record, uncorrected, is on board of the Polaris.

6.—NATURAL HISTORY.

All notes and collections referring to this branch are in the hands of Dr. Bessels, with the exception of a botanical collection among my papers.

7.—GEOLOGY.

Notes and collections in reference to geology are also under charge of Dr. Bessels.

8.—NO OBSERVATIONS ON GLACIERS ARE ON RECORD.

Drift-wood, which has been collected on the southern shores of Polaris Bay and Newman's Bay, and signs of Esquimaux, as the runner of a sled, and Esquimaux weapons, are among Dr. Bessels' collection.

The largest part of the instruments under my charge were lost at our separation from the vessel; all books under my charge will be found on board of the Polaris, with the exception of the Müller Pouillet.

F. MEYER,
Observer Signal-Service, U. S. A.

Paper I. (*Polaris report.*)

ASTRONOMICAL OBSERVATIONS IN SMITH'S SOUND.

August 16, 1872.

Artificial horizon and Pistor & Martin's sextant.

Time by chronometer F.

Z. 11h. 49m. 18.0s. | 28.0s. |
F. 6h. 52m. 40.0s. | 50.0s. |

Barometer, 29.94 (aneroid.) On — 32′ 35″.
Temperature, + 34°.6. Off — 30′ 45″.

Sun's altitude.	
Lower limb.—24° 54′	6h. 03m. 11.6s.
25 22	08 36.4
25 30	10 09.6
25 38	11 42.4
25 46	13 14.8

Latitude, 80° 01′ 59″.09 N. A: 84° 49′ 12″.4.
Longitude, 68 49 23 W.

By prismatic compass.

Sun's azimuth—center: S. 18° 15′ W. 6h. 31m. 35.0s.

Declination, 107° 57′ 44″ W.

Cape Frazer—S. 163° 50′ W.
Cape Wilkes—S. 172 00 W.
Head of Maury Bay—S. 186 00 W.
Cape Barrow—S. 191 35 W.
Cape N. Shaw—S. 209 00 W. 6h. 37m.

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August 18, 1872.

Artificial horizon and Pistor and Martin's sextant.

Time by chronometer F.

Z. 10h. 40m. 23.0s. | 33.0s. |
F. 5h. 43m. 09.6s. | 19.6s. |

Barometer, 29.892, (aneroid.) On—28′ 15″.
Temperature, + 31°.6. Off—35′ 10″.

Sun's altitude.

Lower limb.—25° 32′.	6h. 27m. 56.4s.
48	30 56.4
56	32 26.0
26 04	33 56.0
36	39 55.6

Latitude, 79° 44′ 46″.5 N. A: 89° 22′ 54″
Longitude, 69 24 37.5 W.

By prismatic compass.

Sun's azimuth—center: S. 19° 40′ W. 6h. 41m. 40.0s.

Declination, 107° 39′ 26″ W.

Cape McClintock—S. 279° 15′ W.
Cape N. Shaw—S. 270 00 W.
Cape Barrow—S. 260 50 W.
Cape Wilkes—S. 253 45 W.
Cape Frazer—S. 233 20 W.
Point Joy—S. 188 50 W.
Cape L. Napoleon—S. 183 50 W.

August 19, 1 a. m. and 3 a. m.

Sounding—101 fathoms.

Cape Frazer—S. 230° 30′ W.
Point Joy—S. 197 00 W.
Cape L. Napoleon—S. 186 30 W.

August 20, 1872.

Artificial horizon and Pistor & Martin's sextant.

Time by chronometer F.

Z. 4h. 28m. 45.0s. | 55.0s. | On—31′ 10″
F. 11h. 30m. 40.0s. | 50.0s. | Off—32′ 15″

Sun's altitude.

Lower limb.—44° 21′ 30″.	11h. 48m. 41.6s.
23 55	51 26.8
25 30	54 50.6
27 35	57 41.0
28 45	59 50.4
29 20	12 01 14.0
30 00	02 55.6
30 45	05 25.2
31 00	06 46.4
31 40	09 06.0
32 00	10 31.2
32 20	12 09.2
32 40	13 53.2
33 00	15 47.2
33 20	17 46.0
33 40	19 50.0
33 30	23 22.4
33 20	24 24.0

Z. 5h. 28m. 36.0s. | 46.0s. |
F. 12h. 30m. 29.6s. | 39.6s. |

Latitude, 79° 40′ 39″ N.

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August 21, 1872.

Artificial horizon, sextant, "Coast Survey No. 39."

Time by chronometer F.

Z. 1h. 23m. 30.0s. | 40.0s. |
F. 8h. 24m. 50.4s. | 00.4s. |

Barometer, 29.994.
Temperature, + 42.9.

On—32′ 30″.
Off—30′ 40″.

Sun's altitude.

Lower limb.—35° 46′ 20″.	8h. 54m. 01.2s.
35 57 20	56 46.4
36 08 25	59 37.6

Z. 2h. 19m. 49.0s. | 59.0s. |
F. 9h. 21m. 09.6s. | 19.6s. |
Longitude, 70° 17′ 36″ W.

.....

August 21, 1872.

Artificial horizon and Pistor and Martin's sextant.

Time by chronometer F.

Z. 4h. 52m. 59.0s. | 53m. 09.0s. |
F. 11h. 54m. 19.6s. | 54m. 29.6s. |

Barometer, 30.013.
Thermometer, + 42° 3.

On—31′ 05″.
Off—32′ 15″.

Sun's altitude.

Lower limb.—43° 59′ 05″.	12h. 14m. 17.2s.
59 50	15 41.0
44 00 00	17 35.6
00 05	19 09.6
00 10	21 03.2
00 10	22 35.6
43 59 55	25 26.6
59 45	26 41.6

Z. 5h. 41m. 40.0s. | 50.0s. |
F. 12h. 43m. 00.0s. | 10.0s. |
Latitude: 79° 41′ 33″.6 N.

.....

August 24, 1872.

Artificial horizon and Pistor & Martin's sextant.

Time by chronometer F.

Z. 10h. 43m. 54.0s. | 44m. 04.0s. |
F. 5h. 43m. 50.0s. | 44m. 00.0s. |

Barometer, 30.238.
Thermometer, +32.4.

On—31 [illegible]
Off—32 [illegible]

Sun's altitude.

Lower limb.—21° 18′ 20″	6h. 18m. 35.6s.
Upper limb.—22 34 30	20 55.6
Lower limb.—22 34 30	32 39.2

Z. 12h. 06m. 17.0 | 27.0 |
F. 7h. 06m. 10.0 | 20.0 |
Latitude, 79° 36 10″.5 N.
Longitude, 68 09 06.0 W.

Sun's azimuth—center: S. 18° 50′ W. 6h. 35m. 12s.
Declination: 107° 48′ 52″ W.

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August 24, 1872.

Bearings.

Cape L. Napoleon—S. 199° 20′ W.
Point Joy—S. 210 00 W.
Cape Frazer—S. 233 50 W.
Cape Wilkes—S. 244 00 W.
Cape Barrow—S. 250 00 W.
Cape N. Shaw—S. 256 00 W.
Cape McClintock—S. 262 50 W.
Cape L. Von Buch—S. 288 30 W.
Cape G. Back—S. 290 40 W.

.....

October 9, 1872.

By prismatic compass.

Bearing.	Latitude.	Longitude.
Ingersoll: S. 47° W.	78° 38′ 30″ N.	71° 12′ 31″.3 W.
Inglefield: S. 117° W.	78° 34′ 06″ N.	72° 14′ 40″.2 W.

Resulting { Latitude, 78° 44′ N. / Longitude, 72° 01′ 22″.3 W. } of Observer.

Paper II.

DIRECTION OF WIND AFTER SEPARATION FROM VESSEL.

Lat-itude.	Longi-tude.	Direction of wind.	Tempera-ture.	Date.	Lat-itude.	Longi-tude.	Direction of wind.	Tempera-ture.
° ′	° ′		°	1872.	° ′	° ′		°
77 35	.....	S. E.	.....	Nov. 23	.....	.....	N.	.....
.....	.....	N. E.	.....	24	.....	.....	N.	.....
.....	.....	N. E.	.....	25	.....	.....	N. W.	.....
.....	.....	.....	.....	26	.....	.....	W.	.....
.....	.....	.....	.....	27	.....	.....	W.	.....
.....	.....	.....	.....	28	.....	.....	W.	.....
.....	.....	.....	.....	29	.....	.....	W.	.....
.....	.....	S. E.	.....	30	.....	.....	0	.....
.....	.....	S. E.	.....	Dec. 1	.....	.....	0	.....
.....	.....	S. E.	.....	2	.....	.....	NW.	.....
.....	.....	.....	.....	3	.....	.....	NW.	.....
.....	.....	E.	+ 5	4	.....	.....	NW.	− 9
.....	.....	N. E.	+ 2.5	5	.....	.....	NW.	−15
.....	.....	0 and E.	.....	6	.....	.....	NW.	− 4
.....	.....	0	.....					− 1
.....	.....	0	.....	7	74 04	67 53	W.	.....
.....	.....	0	.....				SW.	
.....	.....	0	.....	8	.....	.....	S.	− 5
.....	.....	.....	.....					−12
.....	.....	.....	.....	9	.....	.....	NW.	−13
.....	.....	0	.....					−18
.....	.....	N. W. & N.	.....	10	.....	.....	NW.	−17
.....	.....	N. & N. E.	.....					−21
.....	.....	.....	.....	11	.....	.....	0	−26
.....	.....	.....	.....	12	.....	.....	W.	−21.5
.....	.....	.....	.....	13	.....	.....	W.	−19
.....	.....	N.	.....	14	.....	.....	0	−25
.....	.....	N.	.....	15	.....	.....	W.	−20
.....	.....	N.	.....	16	.....	.....	W.	− 3
.....	.....	.....	.....					− 1
.....	.....	.....	.....	17	.....	.....	0	− 4
.....	.....	S. E.	.....					+ 1.5
.....	.....	N.	.....	18	.....	.....	0	+ 5
.....	.....	N.	.....	19	.....	.....	N.	+ 2
.....	.....	N. W.	.....	20	.....	.....	W.	+ 4
.....	.....	W.	.....	21	.....	.....	N.	+ 9
.....	.....	0	.....					+ 6
.....	.....	0	.....	22	.....	.....	0	−14
.....	.....	0	.....	23	.....	.....	NW.	− 9

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Paper II—Continued.

Date.	Latitude.	Longitude.	Direction of wind.	Temperature.
1872.	° ′	° ′		°
Dec. 24			N.	+ 4
25			N.	− 1
26			N.	+12
27			N.	+ 8
				+ 5
28			0	+ 1
				+ 3
29			N.	− 4
				− 6
30			NW.	−10
31			S.	−21
			N.	−23
1873.				
Jan. 1			0	−25
			SE.	−29
2			Ch'ng'ble.	−18
				−23
3			NW.	−23
4			NW.	− 2
5	72 07	60 41	S.	−22
				−25
6			S.	−25
				−30
7			S.	−25
				−30
8			S.	−27
				−30
9			0	−35
10			SE.	−30
11			NE.	−33
12			NW.	−33
13			0	−38
				−40
14			NE.	−12
				−16
15			W.	−17
16			NW.	−31
				−25
17			NW.	−38
18			NW.	−27
				−28
19			0	−27
				−32
20	70 02	60 01	0	−33
21			N.	−36
22			SE.	−39
				−32
23			NW.	−31
			W.	−35
24			S. E.	−23
				−21
25			N. W.	−34
				Below −40
26			N. W.	Below −40
27	69 32	60 03	S. E.	Below −40
28			0	Below −40
29			S. E.	Below −40
			S.	−34
30			S. W.	−24
			S. E., E.	−19
31			N.E., N.W	−24
			N.	−26
Feb. 1			W.	−22
				−19
2			W. N. W.	−19
				−16
3			S. S. W.	−16
				−13
4			W.	−10
5	68 50		S. W., S. S. S. E.	−17
6			N. W.	−10
7			S.	−10
			W.	− 5
				−24
				−26
8			0	−30
			S. E.	−16

Date.	Latitude.	Longitude.	Direction of wind.	Temperature.
1873.	° ′	° ′		
Feb. 9			W.	
10			W.	
11			N. W.	
12			N. W.	
			W.	
13			W.	
14			W.	
15			W.	
16			0	
			W.	
17			W.	
18			W.	
19			N.	
20			E.	
21			0	
			S.	
22			0	
			S. E.	
23			S. E.	
24			N.	
25			0	
			N. E.	
26			N. W.	
			0	
27			N.	
28			N. W.	
Mar. 1			N. W.	
2			N. W.	
3			N. W.	
4			0	
5			N. W.	
6			W. N. W.	
7			W. N. W.	
8			0	
9			0	
			N.	
10			N.	
11			N.	
12	64 32		N.	
13			N. N. W.	
14	64 19		S. E.	
15			E.	
15			N. W.	
16			0	
17	63 47		N. E.	
18			S. W.	
			N. W.	
19			N.	
20			N.	
21			N.	
22	62 56		N. W.	
23			N.	

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Paper II—Continued.

Date.	Latitude.	Longitude.	Direction of wind.	Temperature.	Date.	Latitude.	Longitude.	Direction of wind.	Temperature.
1873.	° ′	° ′		°	1873.	° ′	° ′		°
Mar. 24	.....	.....	N.	−5	April 10	.....	.....	0	.....
	.....	.....		+8	11	.....	.....	0	.....
25	61 59	.....	N.	−6	12	55 35	.....	S. E.	.....
	.....	.....		+7	13	55 23	.....	S. W.	.....
26	.....	.....	N. W.	−4	14	55 13	.....	N.	.....
	.....	.....		+9	15	54 58	.....	N.	.....
27	.....	.....	N. W.	0	16	54 27	.....	N. N. W.	.....
	.....	.....		+20	17	.....	.....	N.	.....
28	.....	.....	N.	+3	18	.....	.....	N. W.	.....
	.....	.....		+10	19	.....	.....	N. W.	.....
29	.....	.....	W. N. W.	−1	20	.....	.....	N. E.	.....
	.....	.....		+9	21	52 57	.....	N. E.	.....
30	.....	.....	W. N. W.	+6	22	.....	.....	.....	.....
31	59 41	.....	W. N. W.	.....	23	.....	.....	N.	.....
April 1	.....	.....	N. N. W.	+12				N. E.	.....
2	.....	.....	S. W.	.....	24	.....	.....	N.	.....
3	.....	.....	N. N. W.	.....				N. E.	.....
4	56 47	.....	N. E.	.....	25	.....	.....	N. E.	.....
5	.....	.....	N. E.	.....	26	53 30	.....	.....	.....
6	.....	.....	N. W.	.....	27	.....	.....	.....	.....
7	.....	.....	W. N. W.	.....	28	.....	.....	W. S. & W.	.....
8	.....	.....	W. N. W.	.....	29	53 04	.....	0	.....
9	55 51	.....	N. W.	.....	30	.....	.....	.....	.....

PAPER 28.

WASHINGTON, D. C., *September* 30, 1873.

SIR: In accordance with instructions received from Colonel Mallery, I have endeavored in the short time at my disposal to prepare a brief preliminary account of the severe cyclone that visited the shores of Nova Scotia and Newfoundland on the 24th and 25th of August last, where it did immense damage; and have also given some attention to the preliminary storm of August 13 and 14, which was severely felt on the shores of New Jersey.

In preparing the maps which accompany this report, an attempt has been made to gather in from all possible sources of information such meteorological observations as, although somewhat crude, may enable us to obtain a better understanding of the extent of these storms. To this end application has been made through Captain Howgate for the logs of a number of vessels that have passed in or near the regions visited by the storms in question. A list of the sources of information will be found in the Appendix No. 1, and it is proper here to state that the office is especially indebted to the kindness of the Hon. Secretary of State; the Hon. Secretary of the Navy; Prof. Joseph Henry, of the Smithsonian Institution; Mr. Lorin Blodget, of Philadelphia; the representatives at Washington of the New York Herald, Times, and Tribune, and the Boston Advertiser and Journal; Dr. Smallwood, of Montreal; Professor Kingston, of Toronto; the captains of the steamship Sonora, brig Dorothea, steamer E. M. Arndt; Mr. T. C. Hill, of Sidney, Cape Breton; W. Allison, of Chatham, Cape Breton; and Mr. L. Clift, of Harbor-Grace, N. F., for courtesies shown in the supplying of such material as was available for the purpose in hand. In Appendix No. 2 will be found a list of those vessels whose logs were used in connection with the observations made upon shore.

Besides the meteorological features of the hurricane, the great destruction of life and property has rendered it proper that I should prepare a brief statement of such details as have been collected up to this date. In this work I have been especially assisted by Sergeant Pearson, who has prepared a detailed map and the accompanying table, (Appendix No. 3,) in which is shown the geographical distribution of the damage done to life and property. The sums-total given in this final table are evidently far within the probable truth, and I have thought it not improper to make the following slight additions in order to arrive at a more correct idea of the ravages of this terrible storm: One thousand and thirty-two vessels, of which four hundred and thirty-five were small fishing-schooners, are known to have been destroyed during the 24th and 25th of August in the neighborhood of the Gulf of Saint Lawrence and the Atlantic shores of Nova Scotia, Cape Breton, and Newfoundland. On the other hand, over ninety vessels were destroyed by this hurricane in the course of its passage over the ocean before reaching Nova Scotia, making a grand total of at least one thousand one hundred and twenty-three vessels destroyed within a few days by its power. Two hundred and twenty-three lives are definitely reported as lost, and the most moderate estimate of the numerous

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cases in which whole crews are stated to have been lost swells this number to nearly five hundred, while if to this is added the loss of life on land, and the loss in the earlier history of the cyclone, the grand total amounts to at least six hundred lives. The summary given shows that little less than nine hundred buildings were damaged or destroyed during the 24th and 25th of the month. Any endeavor to estimate the value of the property destroyed is attended with great difficulties, but may be within bounds if to the seven hundred thousand dollars damage done to wharves and crops is added one thousand dollars for each building, two thousand dollars for each of the larger vessels, and one thousand dollars for each of the smaller vessels, which would give a total of three and a half millions of dollars, a sum that it will be seen may easily be far below the truth. It is not unimportant to here remark that the ravages of this storm have very seriously crippled the interests of the American and Canadian fisheries, and that the loss falls with special severity upon Gloucester and other cities of New England.

The following maps accompanying this report give a general view of the progress of this storm:

Map No. VII shows the meteorological conditions at 4.35 p. m., Washington time, August 23.

Map No. VIII shows the meteorological conditions at 4.35 p. m., August 24.

Map No. IX shows the conditions at 11 p. m., August 24.

Map No. X shows the conditions at 7.35 a. m., August 25.

Map No. XI shows the conditions at 4.35 p. m., August 25.

On the latter chart the previous track of the storm, as far as it has been traced, is also given; and in Appendix No. 12 is a table giving the geographical positions of the storm-center, showing it to have been one of a not very large class of cyclonic storms that, beginning in the West Indies, work westward and northward, up between the Bermudas and the Atlantic coast, and then turn northeastward toward Newfoundland. It is scarcely to be doubted that such a storm as this must have continued its course for several days longer toward Europe; and it is an interesting fact that the Bulletin International of the Paris Observatory shows that a severe storm moved over the northern portion of Great Britain on the 31st of August, reaching Norway on the 3[illegible] September; and although no logs of vessels have yet been received from the eastern half of the Atlantic Ocean sufficiently precise to establish the details of the connection between this European storm and that of the preceding days in Nova Scotia, yet the interval of three and a half days is so short as to leave no reasonable doubt but that they were identical.

It has frequently been stated that while no doubt could exist as to the identity in general of the great American and European storms, yet that no single instance of the kind had as yet been well established. It is to be hoped that the present contribution to this subject may be considered as removing all doubt on this matter, although pains will be spared to secure further testimony.

The principal features of the weather in the Middle and Eastern States during the period embracing the present study may be briefly summarized as follows:

On the morning of the 12th an area of slight barometric depression existed west of the Alleghanies. The temperature throughout that region was of about the normal value; the wind light and variable. The influence of this depression was, however, already perceptible on the Middle Atlantic coast, where easterly winds with clouds and light rain were reported, while over New England and Nova Scotia the barometer stood somewhat about the average value, with northerly winds and clear weather. Vessels off the coast reported northeasterly winds, and those over a hundred miles distant designated these as gales. By the morning of the 13th the barometer had fallen decidedly on the Middle Atlantic coast, and northeasterly winds increasing about to [illegible] with rain prevailing throughout these States, while in New England the pressure had slightly risen, it being apparently highest at that time over Maine and New Brunswick. The indraft of air from the ocean continued during the 13th and until the 14th producing, as has been quite frequently noticed on other occasions, a continued increase of the disturbance that had been initiated the previous day along the Atlantic coast. very heavy rains fell during the night, and a secondary barometric depression appears on that morning to have been central over the peninsula lying between the Chesapeake and Delaware Bays. It is, perhaps, impossible to say whether this depression originated in Virginia or off the Atlantic coast, and whether it had moved northeastward or northward.

This delicate point could have been settled, probably, had we been able to obtain any accurate meteorological reports from the peninsula in question; as it is, the depression passing through Delaware on the nights of the 13th and 14th was apparently accompanied by two, if not three or four, smaller storm-centers, which, being of the nature of tornadoes, seemed to have done considerable damage, both by wind and rain, in Eastern Pennsylvania and in Maryland. The most severe winds were, as always the case, reported from the New Jersey coast; and, destructive as these northeasterly gales were to property on the land, it is satisfactory to be able to refer to the

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ter of Captain Felber, of the steamship E. M. Arndt, who testifies that, being on s way to New York with a disabled propelling-screw, and relying entirely upon the nds, he was fortunate enough to obtain a copy of the New York Herald on the 10th August, of the preceding day, containing the prediction of continued northeasterly nds along the New England coast, and relying upon this, made a speedy and safe ssage to the harbor of New York, which he entered at 6 p. m., August 13. The orm which on the morning of August 14 was probably central near Long Branch, w Jersey, appears to have increased somewhat in size and severity during the day, oducing brisk and high northeasterly winds in Southern New England, which in- ase was, however, quite in accordance with our previous knowledge of the diurnal owth and subsidence of these phenomena. Owing to the presence over a large body cold, dry air to the northward, the meteor could advance but very little in that ection; it appears rather to have moved directly eastward, or possibly east-north- stward, and, on the morning of the 15th, to have been about one hundred miles th of Cape Cod, while northeasterly winds, diminishing in force and backing to th, prevailed, with clouds and light rain, in New England.

During the 15th easterly winds with rain prevailed at Halifax, and the disturbance ms to have almost completely died away. It is important to notice that, while this mparatively insignificant storm was thus passing northeastward over New Jersey nd Nova Scotia, the barometer had steadily risen at the Bermudas, with light nds and pleasant weather on the 16th, but with somewhat stronger southwesterly nds and rain on the 13th, 14th, and 15th. The highest pressure of the month was ined at the Bermudas on the 18th of August, and rainless weather continued in se islands from the 16th to the 21st of the month; indeed, the drought of August September has been much complained of by the residents of those islands. Dur- the former interval the cyclone, which has been frequently termed the great va Scotia cyclone, was steadily developing some five hundred miles to the thward. The first report that has reached us concerning this hurricane is obably that of the 13th of August, when the bark Crest of the Wave reported eavy gale veering from northeast to southeast in latitude 14° and longitude ; as, however, our next definite information concerning the hurricane is dated the 18th of the month, it would be too much to assume more than that the ther experienced by the bark Crest of the Wave was intimately associated with early history of the Nova Scotia cyclone. The observation, however, deserves e recorded, inasmuch as several of these storms are already known to have origin- not far from the region in which the Crest of the Wave then was, and it is rom impossible but that we shall, by further diligent collocation of ships' reports, ble to carry back the history of the Nova Scotia cyclone from the 18th to the 13th ugust, and possibly still further, and to show that this belongs to the class of nes that originate near the coast of Senegambia, and distinguished from those originate further to the west. Be this as it may, the history of the Nova Scotia ne since the 18th of August seems to be sufficiently clear. It was at noon of that in about latitude 22° and longitude 60°, with light northeast winds and falling meter at the Bermudas; at noon of August 19th it was in latitude 22°, longitude at noon of August 20th, in latitude 27°, longitude 66°; at noon of August 21st, titude 30°, longitude 67°.5, with falling barometer and strong northeasterly winds ing to southeast at the Bermudas; at noon, August 22d, it was in latitude 33°.5, longitude 68°.5; at noon of August 23d, in latitude 37° and longitude 67°, with nwesterly gales at the Bermudas. At this time the barometric depression attend- he cyclone seems to have extended to a distance of at least five hundred miles nwest and northward of its center, with falling barometer and cloudy weather ted in New England and Canada, while the report from Mount Washington s continued northwesterly winds.

the multiplicity of conflicting accounts concerning the positions of vessels and the her experienced by them on the 23d, 24th, and 25th of the month, it is difficult to y that desire for the exact truth which should guide the study of nature; and in g, as my conclusion, that the center of the cyclone and its most terrific mani- ion of power did not pass directly over Nova Scotia, but kept perhaps two hun- miles off its coast, I am aware that discrepant observations may be adduced cting with this conclusion. It is my belief, however, that at midnight of the 25th, the center of the storm must have been in latitude 44° and in longitude 56°. s about this time that the lowest barometers were experienced at Halifax, Sidney, ottc Town, and also on board several vessels at that time near the coast of Nova . Between sunset and sunrise of this night occurred the greatest destruction of d property in this region, due to a terrific easterly wind, which within twenty- ours backed from southeast to northwest. On the 25th at noon the storm was ently central in latitude 44°.5 and longitude 54°.5. It was at this time that the barometer was reported on the Magdalen Islands, Gulf of St. Lawrence. It is to narked, however, that the lowest reading of the barometers in Nova Scotia and lf of St. Lawrence when reduced to the sea-level do not fall below 28.90, while

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the occasional reports of barometric readings made by vessels at sea, incorrect though they may be, owing to our ignorance of the errors of the instruments, yet uniformly point to a pressure at least as low as 28.30 inches near the center of the cyclone. On the 25th at midnight it is impossible to locate the region of lowest barometer nearer than is indicated by the winds at Harbor-Grace, Newfoundland, and Cape Breton which point to the center as being in latitude 46° and longitude 52°. At noon of the 26th the center must have been about latitude 47°.5 and longitude 50°. At this same rate of progress the center would at noon of the 27th be in latitude 49°.5, longitude 54°.5. The accompanying table, Appendix No. XII, gives in addition to the preceding positions, which are comparatively well established, also the positions of the barometric depression that reached the shores of Great Britain a few days subsequently, as shown by the Bulletin International; this disturbance was apparently far less severe than that of Nova Scotia, which is in accordance with the well-recognized general rule that these storms gradually extend over a large circular area, and, after diminishing in force, completely break up on encountering large continental masses of dry air.

In connection with this brief sketch of the progress of the Nova Scotia cyclone, I would respectfully direct your attention to the fact that whenever we have telegraphic communication with the Bermudas it will become possible to greatly extend the scope of the storm-predictions, and by the co-operation of the fast-sailing European steamers to forewarn vessels leaving the ports of the United States of the existence of any cyclone that may be in progress some distance off the coast. It is indeed evident that as any portion of the territory covered by the signal-service stations is liable to storms approaching from the southeast, southwest, or northwest, it should be equally protected, if possible, on all sides. The advantages of an extended correspondence with navigators have been very strongly felt in the prosecution of this work, and a very considerable extension in this direction of the work of the signal-service would seem to be justifiable.

I have the honor to remain, very respectfully, yours,

CLEVELAND ABBE.
Assistant, Office Chief Signal-Officer.

Brig. Gen. A. J. MYER,
Chief Signal-Officer, United States Army.

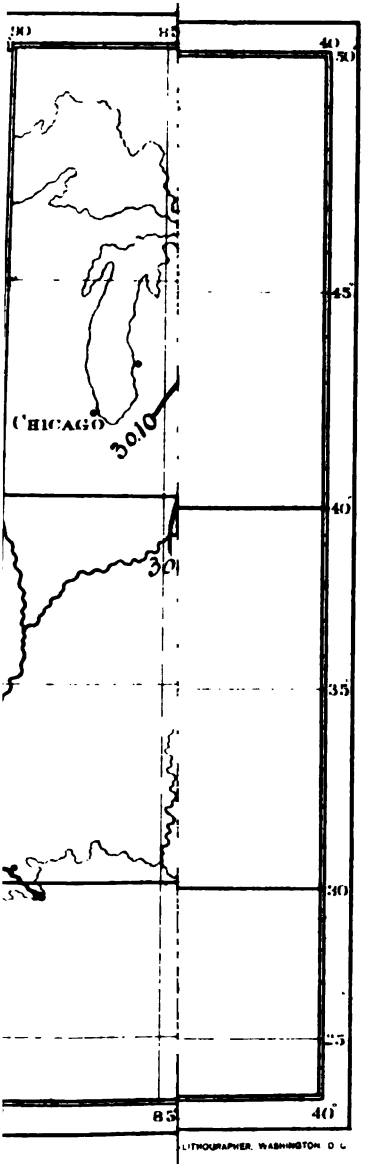
APPENDIXES TO THE REPORT ON THE NOVA SCOTIA CYCLONE OF AUGUST 24-25, 1873.

APPENDIX No. I.

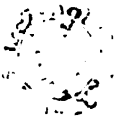
The following sources of information have been examined:.

Signal-service stations, forms 4, MSS.
Signal-service stations, journals, MSS.
Canadian stations, forms 4, MSS., (excepting Saugeen, Port Dover, Port Stanley, Quebec, and Kingston, Canada, for week ending August 30, and Halifax and Chatham, N. B., for week ending August 23.)
Remarks of H. Clift, at Harbor-Grace, Newfoundland, MSS.
Letter of Dr. Smallwood, Montreal, September 13, MSS.
Letter of W. C. W. Schreck, observer-sergeant, Eastport, Me., September 13, MSS.
Letter of A. B. Williams, observer-sergeant, Portland, Me., September 15, MSS.
Letter of Capt. C. Felber, steamer E. M. Arndt, MSS.
Montreal local observations, MSS.
Storm-report of W. Allison, at Chatham, N. B., MSS.
Meteorological register, in letter of Gilbert Murdock, September 20, MSS.
Meteorological register, in letter of J. P. Hill, September 22, Sydney, C. B., MSS.
Logs of steamship Sonora, MSS.
Log of brig Dorothea, MSS.
Log of steamship Alhambra, MSS.
Log of steamer Russia, MSS.
Log of steamer Europa, MSS.
Prof. Maury's Paper 1503—log of Hammonia, MSS.
Log of steamship Albemarle, MSS.
Log of United States steamer Powhatan, August 23, 24, 25.
Washington Chronicle, September 17 (?), 18 (?), 27.
New York Herald, from August 11 to September 30.
New York Times, from August 11 to September 30.
New York Tribune, from August 11 to September 30.
New York Journal of Commerce, from August 11 to August 30, and from September 5 to September 19, inclusive, excepting 2, 3, 12, 16, 17 September.

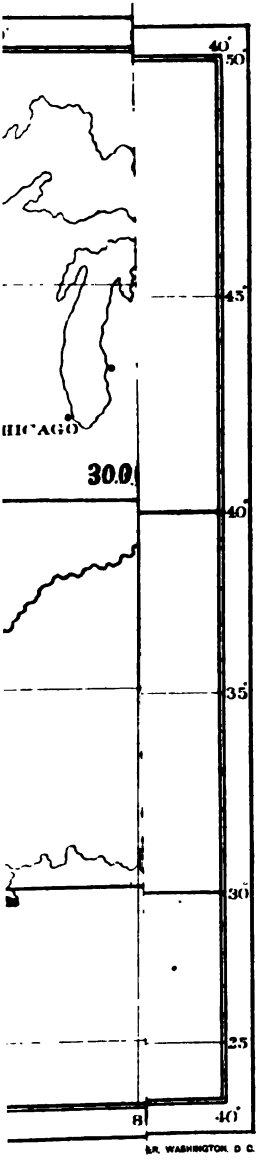
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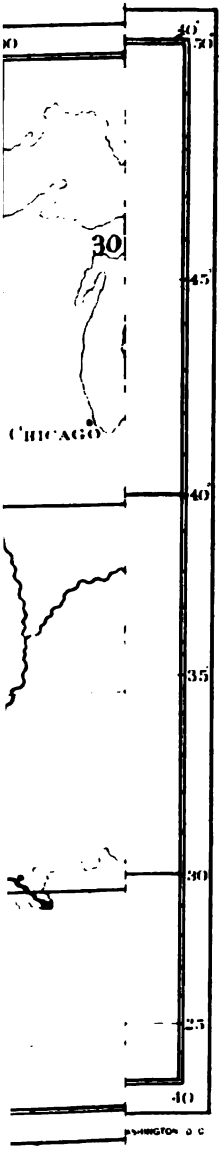


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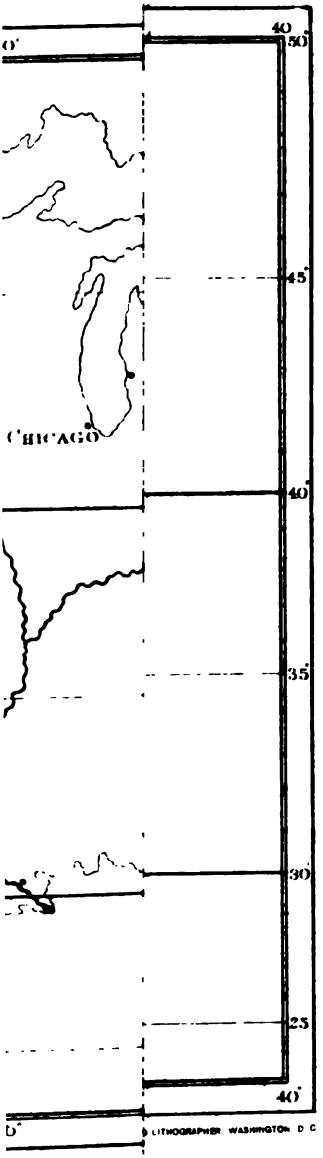
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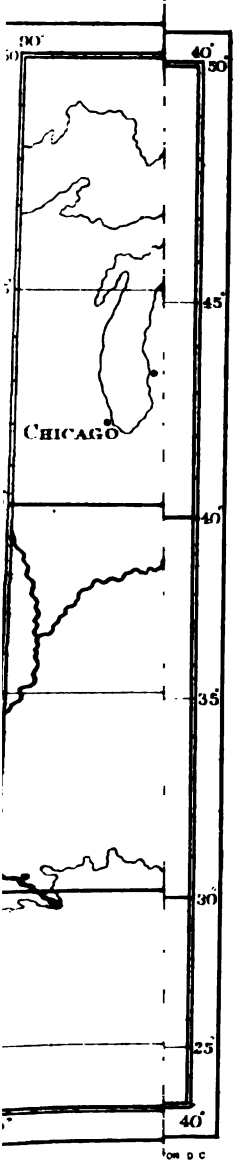
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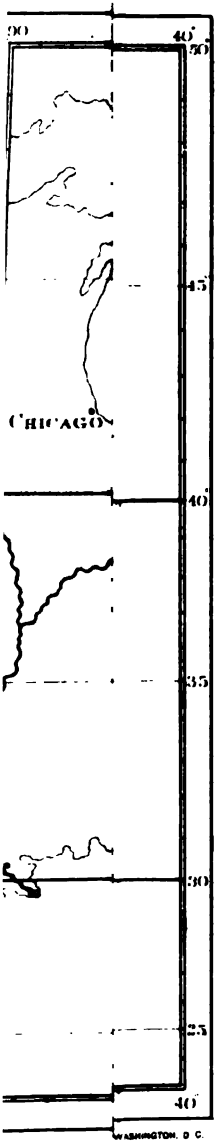
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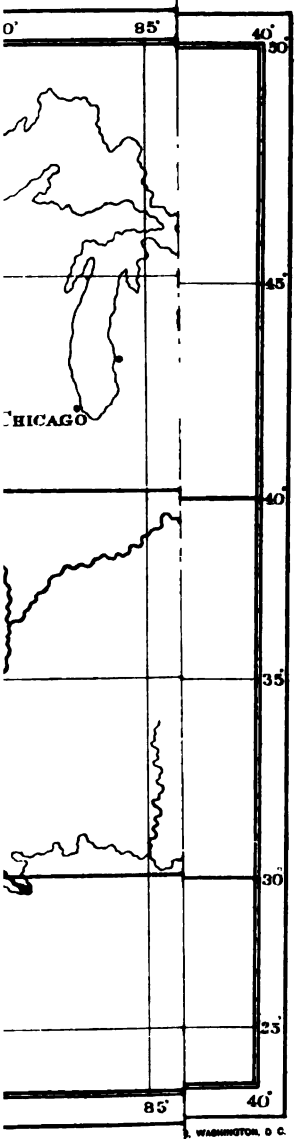
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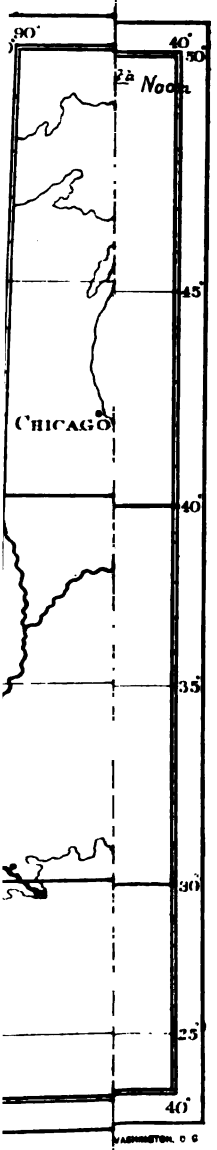
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Boston Journal, from August 11 to September 18.
Boston Advertiser, from September 1 to September 18.
Boston Globe, from August 11 to September 18.
Boston Post, from August 11 to August 30.
London Times, from August 24 to September 12; also, letter of H. B. Wilson in Times of September 18. Files of Times imperfect.
London Standard, imperfect files up to September 12.
London Globe, imperfect files up to September 12.
London Daily News, imperfect files up to September 12.
London Telegraph, imperfect files up to September 12.
Charlotte Town (Prince Edward Island) Patriot, August 28, 30, September 18.
Yarmouth (N. S.) Herald, August 23, September 4, 11.
Halifax Tri-Weekly Academic Recorder, August 29.
Halifax Morning Chronicle, August 28, 30, September 2, 4, 6, 11, 13, 16.
New Glasgow (N. S.) Eastern Chronicle, August 28, September 4.
North Sydney (C. B.) Herald, August 27, September 3.
Sydney (C. B.) Cape Breton Advocate, August 28, September 11.
Sydney (C. B.) Times, August 30, September 6, 13, 20.
Hamilton (Bermuda) Royal Gazette, August 12, 19, 26, September 2, 9, 16.
Newspaper slips inclosed in letter of Gilbert Murdock, September 20.

APPENDIX No. II.

List of vessels from which information has been received concerning the Nova Scotia cyclone of August 24-25, 1873.

America, steamship.
Australia, steamship.
Atlantic, bark.
Arthur, brig.
Assam Valley, ship.
Albemarle, steamer.
Athena, bark.
Alexander, bark.
Belle Stewart, bark.
Brazos, bark.
Crest of the Wave, bark.
Dos Hermanos, schooner.
Dundee, brig.
E. M. Arndt, steamer.
Excelsior, brigantine.
Emma F. Lewis, schooner.
Esperanza, ——.
Ellen Southard, ship.
Ella Maria, brig.
Edinburgh, steamship.
Everhard Delins, bark.
E. M. Seeds, bark.
Guldfaxe, ship.
Hound, brig.
Helen Sands, bark.
H. M. Crosby, schooner.
Helicon, ship.
Hoogly, ship.
Hebe, ship.
Helvetia, ship.
Hammonia, steamship.
Importer, ship.
Italia, steamship.
J. Morton, brig or schooner.
Jas. Kenway, bark.
Kingston, brig.
Louise, bark.
La Plant, steamship.
Lookout, schooner.
Lapland, steamer.
Mary Louise, fishing-schooner.
Minnehaha, ship.
Mary S. Lunt, schooner.
Mercur, bark.
Napier, schooner.
Nora, ship.
Orinoco, bark.
Oceanic, steamship.
Oak Point, brig.
Pennsylvania, steamship.
Primera, bark.
Russia, steamer.
Reform, bark.
Ravenwood, brig.
Saint Olaf, steamship.
Saltwell, steamship.
Sappho, schooner.
Susan E. Voorhees, brig.
Scindia, steamship.
Spirito, bark.
The Brothers, schooner.
Thos. Dunham, ship.
T. Arthur, brig.
Tenax Proposite, bark.
Young Eagle, bark.
Zizine, bark.
Zuleima, bark.

APPENDIX No. III.

Details of loss or damage incurred in storm of August 24-25, 1873, at Cape Breton, Gaspe, Labrador, Magdalen Islands, New Brunswick, Newfoundland, Nova Scotia, and Prince Edward Island.

Vessels described as fishing-schooners entered under the head of "small" vessels; all her under the head of "larger" vessels.

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Lives lost: numbers only given where definite information has been received: crews, where "all hands" are reported lost, have been estimated at 10 for each crew.

Amount of property in dollars only contains such items as have been reported.

Buildings damaged or destroyed: contains all buildings, of whatever description, where numbers have been given.

All loss or damage described as "immense," "great," "several," "many," "incalculable," "unlimited," "very large," &c., has not been allowed for in total.

Names of places.	Vessels damaged, stranded, or wrecked.		Lives lost on land or at sea.	Amount of property reported in dollars.	Buildings damaged or destroyed.	Remarks.
	Small.	Larger.				
CAPE BRETON.						
Ainslee Lake					6	
Aspy Bay		1				
Arichat		56			200	
Bras d'Or		1	(a)			
Bennecadie					60	
Baddeck, Victoria County					30	
Baysdale, near Grand Lake					20	
Boulederie					30	
Black Rock Light	1	5	(b)			Wharf damaged.
Big Bras d'Or		1	(a)			
Cow Bay	27	29	1	$200,000		Breakwater, docks and wharves damaged.
Creighton's Head					(c) 1	
Canso, town, harbor, and vicinity	(d) 280	3		(e) 100,000	100	Wharves and chap damaged.
Carriboo Cove, (Straits of Canso)		1	(a)			
Cape Breton		(f) 100		(g) 200,000		
Cape Dolphin			(h) 3			
Cheticamp		1				
East Bay					82	
Fourché						
Glace Bay		4	1			
Ingonishe	(i)	1				
L'Ardoise			1		30	
Lingan		4				
Louisbourg		17				
Loch Lomond			1		39	
Myra (or Mire) Bay		2				Two bridges and one church damaged.
Main-a-dieu	(k)	7				Wharves damaged.
North Sydney		37	(l)			Wharves, bridges and church damaged.
Port Caledonia		30				
Point Edward		3				
Petit de Grot		2	(m)			
Port Hawksbury		4	2			
Port Hood		4	22			
Round Island						
Riviere Bourgiese		15	(n)	70,000	30	
Sydney	(o)	30		(p) 75,000	(q)	Wharves, docks, bridges, and cars damaged.
St. Peter's		2	(r)		2	One church damaged.
Scatterie		(s) 1	15			

a All hands lost.
b Three vessels; all hands.
c New light-house.
d Several; $1,000 each loss.
e Loss to buildings.
f Included in other items.
g Loss to Halifax underwriters.
h Washed ashore.
i Several boats; not included in total.
k Great; not included in total.
l One schooner lost; all hands; also one man
m One crew; all hands.
n Two crews; all hands.
o Several; not included in total.
p To shipping.
q Many; not included in total.
r Several; not included in total.
s S. S. Saltwell.

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Names of places.	Vessels damaged, stranded, or wrecked. Small.	Vessels damaged, stranded, or wrecked. Larger.	Lives lost on land or at sea.	Amount of property reported in dollars.	Buildings damaged or destroyed.	Remarks.
CAPE BRETON—Continued.						
Ann's		1				
t Bay					16	
Seecomaugh		2				
			47			
crews estimated at ten each			100			
Total	308	264	147	$645,000	545	
GASPE.						
adorm		2				
au Loup					(a)	Wharves destroyed.
t St. Peter	(b)					
e	40					
Total	40	2				
LABRADOR.						
e Harbor			(c)	(d)		
Charles			(c)	(d)		
Harrison		3	(e)	(d)		
n Tickle	(f)	4	(g)			
position l)		1	17			
			56			
crews estim'd at ten each			70			
Total		8	126			
MAGDALEN ISLANDS.						
rst Harbor		(h) 60	3			
Island		1				
r		17				
len Island	52	(f)(k)66				
nt Bay	(l) 30	4				
arry Head		1	12			
Total	52	92	15			
NEW BRUNSWICK.						
Island, near Buctouche						Bridge damaged.
iche		3	3			Wharf and bridge damaged.
am				(d)		
ild		2				
ne						Bridge.
nce						
n's Point, Shediac		1				English gun-boat.
neke		13			1	Wharves and bridges damaged.
n's		1				
e				(m) 15,000	(b)	

'nlimited; not included in total.
everal; not included in total.
'ery large; not included in total.
numerous; not included in total.
'hree crews; all hands.
calculable; not included in total.
n land, thirty-seven or more; at sea, two men and four crews.
k Forty-six outside of harbor, twenty-three inside of harbor.
l Including bark Swift.
k included in other items in total.
l Included in item for Magdalen Island.
m To railroad-track.

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Names of places.	Vessels damaged, stranded, or wrecked.		Lives lost on land or at sea.	Amount of property reported in dollars.	Buildings damaged or destroyed.	Remarks.
	Small.	Larger.				
NEW BRUNSWICK—Continued.						
Shemogue		1				
Ship-Harbor Point		1				
Total		22	3	$15,000	1	
NEWFOUNDLAND.						
Cow Head, west coast	(a)		(b)			
Cape Ray					2	Two churches and crops damaged.
Port Rich		(c) 1				
St. John's		1				
Total	20	2			2	
NOVA SCOTIA.						
Albion Mines		3				
Antigonish		5	1	(d)		Wharves.
Bayfield, near Antigonish		4				
Ballard Wharf		1				
Black River, near Antigonish					(e)	
Bedford, near Halifax						Wharves damaged.
Bedford Rifle Range						Military tents damaged.
Beaver Harbor, Halifax County	(f)	1			15	Church damaged.
Canso, Straits of	(g) 4	(g) 19	1			
Cape Canso		3			62	
Cape Jack, Straits of Canso		1	1			
Cape Sable, off		(h) 4				
Cape Negro		1	2			
Crow Harbor			1			
Cape St. George		1				
Devil's Island		1	5			
Digby		1				
Frazer's Point		3				
Goldenville					22	
Goose River, near Guysboro		1				
Goose River, Cumberland County		4				
Guysboro		8	1	$30,000	100	Wharves damaged.
Halifax	(i)	1	1			
Hantsport		3				
Harbor Boucher, near Antigonish		2				
Irish Cove, near Halifax						
Island Cove	(i)					
Isaac's Harbor		4			(k) 16	
Kempt		1				
Ketch Harbor	(i)	1				
La Boer Harbor		28				From report of Capt. F. K. Barr, U. S. revenue-cutter.
Lennox Passage, Straits of Canso		2				
Manchester					100	
Owl's Head		1				
Port Mulgrave	1	8	(l)	8,000		Wharves damaged.
Pictou		24				
Pictou Landing		3				Wharf damaged.
Pictou Island		1				
Point Pleasant		1				
Pirate Cove		4				

a Twenty French fishermen. (*l*)
b All hands supposed; not included in total.
c Ship Scotia.
d Considerable; not included in total.
e All barns; not included in total.
f A number of; not included in total.
g Included in other items.
h Including ship Ellen Southard.
i Several; not included in total.
k Including church.
l One schooner; all hands; one more drifted ashore.

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Names of places.	Vessels damaged, stranded, or wrecked.		Lives lost on land or at sea.	Amount of property reported in dollars.	Buildings damaged or destroyed.	Remarks.
	Small.	Larger.				
NOVA SCOTIA—Continued.						
gwash	.....	(a) 4	.....	.....	.....	
d's Gulf	.....	1	.....	.....	.....	
gwash Basin	.....	1	2	.....	.....	
bro	.....	4	.....	.....	.....	
lee	.....	1	.....	.....	.....	
d Point	.....	1	.....	.....	.....	
lbourne	.....	1	12	.....	.....	
et Harbor	.....	(b)	.....	.....	(c) 33	
cadie	5	1	2	.....	.....	
llace	.....	(d) 2	.....	.....	.....	
ite Head	.....	1	.....	.....	.....	
	.....	.....	30	.....	.....	
crew estimated at	.....	.....	10	.....	.....	
Total	10	149	40	$38,000	349	
PRINCE EDWARD ISLAND.						
rlotte Town	4	6	(e)	.....	.....	Wharves; railroad-track damaged.
e Cavendish	.....	1	(f)	.....	.....	
e Head, north coast	.....	(g) 1	.....	.....	.....	
umpec Bar	.....	3	(h)	.....	.....	
ley	1	.....	.....	.....	.....	
Point Chapel	.....	3	.....	.....	.....	
g Island	.....	1	7	.....	.....	
ne	.....	1	.....	.....	.....	
h Cape	.....	5	(i) 73	.....	.....	
h Bay	.....	(i) 30	(f)	.....	.....	
lon	.....	2	(k)	.....	.....	
ce Edward Island	.....	50	(l)	.....	.....	
Do	.....	.....	.....	.....	.....	Twenty-seven more mentioned.
ette	.....	1	.....	.....	.....	
y Point	.....	2	.....	.....	.....	
hore	.....	1	(f)	.....	.....	
t Cape	.....	1	(f)	.....	.....	
	.....	.....	80	.....	.....	
t crews, estimated at ten each	.....	.....	80	.....	.....	
Total	5	58	(m) 160	.....	.....	
FINAL SUMMARY.						
Breton	308	264	147	645,000	545	Including S.S. Saltwell.
e	40	2	.....	.....	.....	
ador	(n)	8	126	(o)	(p)	
alen Islands	52	92	15	.....	.....	Including bark Swift.
Brunswick	.....	22	3	15,000	1	Including English gunboat.
oundland	20	2	.....	.....	2	Including ship Scotia.
Scotia	10	149	40	38,000	349	Including ships James Duncan and Ellen Southard.
e Edward Island	5	58	160	.....	.....	Including ship Mascongas.
Total	435	597	491	698,000	897	

a Including ship James Duncan.
b Several; not included in total.
c Including three churches.
d Including ship James Duncan; also included in Pugwash account.
e Two vessels; all hands.
f All hands.
g Ship Mascongas, for Liverpool.
h One vessel; all hands.
i Estimated.
k All hands supposed lost.
l Drifted ashore; included in other items.
m Not including the thirty crews reported lost in North Bay.
n Incalculable.
o Immense; not included in total.
p Unlimited.

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APPENDIX No. XII.

Approximate positions adopted for the Nova Scotia cyclone of August 24–25, 1873.

		Latitude.	Longitude.
August 13.		14 north.	27 west.
*	* *	* * *	* *
August	18 noon	20	60 west.
August	19 noon.	22	63 west.
August	20 noon.	27	66 west.
August	21 noon.	30	67.5 west.
August	22 noon.	33.5	68.5 west.
August	23 noon.	37	67 west.
August	24 noon.	41	61.5 west.
August	24 midnight.	44	56 west.
August	25 noon.	44.5	54.5 west.
August	25 midnight.	46	52 west.
August	26 noon.	47.5	50 west.
August	27 noon.	49.5	44.5 west.
*	*	* * *	*
August	29	(54 ?)	(29 ?) west.
*	*	* * *	*
August	31	57	15 west.
September	1	58	6 west.
September	2	58	4 east.

PAPER 29.

LIST OF DISASTERS TO SHIPPING UPON THE GREAT AMERICAN LAKES DURING THE YEAR 1873.

JANUARY.

2d.—Schooner E. M. Shoyer adrift; caught in the ice and abandoned off Chicago.
3d.—Propeller Ironsides slightly damaged by ice at Milwaukee.
Steam ferry-boat Victoria broke her machinery at Detroit.
Propeller City of Fremont disabled by striking the bar at Grand Haven.
4th.—Steam ferry-boat Detroit had her sides broken by running ice at Detroit.
10th.—Propeller Messenger disabled while breaking ice in Milwaukee River.
16th.—Propeller Manistee disabled on Lake Michigan by losing wheel; towed to Milwaukee.
23d.—Propeller Messenger slightly damaged on Lake Michigan.
A sail-yacht in the ice off Bass Island, Lake Erie.
24th.—Propeller Manistee detained by ice off Milwaukee.
27th.—Propellers Manistee and Messenger ice-bound on Lake Michigan.
30th.—Propeller City of Fremont detained three days by ice twenty-five miles from Milwaukee, on Lake Michigan; obliged to use bacon for fuel.

FEBRUARY.

(Ice unusually extensive on Lake Michigan.)

2d.—Steamer Transit aground near Detroit.
4th.—Propeller City of Fremont cut her way through the ice at Milwaukee, but compelled to return without reaching Grand Haven.
9th.—Propeller City of Fremont made another unsuccessful attempt to cross Lake Michigan. Ice supposed to extend entirely across the lake; a fact never before known. Tug Tempest sunk at Grand Haven.
20th.—Propeller City of Fremont again failed to penetrate the ice in the lake.
28th.—Propellers Manistee and Messenger have remained ice-bound on Lake Michigan, off the east shore, during the entire month.

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MARCH.

(Lake Michigan supposed to be frozen entirely across except, perhaps, some cracks.)

3d.—Propeller Manistee fast in ice five miles off Lincoln, on east shore Lake Michigan. Has been in ice thirty-seven days.
Propeller Messenger a little north of Stony Point.
10th.—Propeller Messenger four miles off Little Point Sauble.
Propeller Manistee got to within one mile of Lincoln.
13th.—Propeller Saint Joseph detained by ice at entrance of Milwaukee Harbor. Got out, and returned to port 14th.
15th.—Ferry steamer Favorite driven against her dock and damaged by a heavy gale at Detroit.
16th.—Propeller City of Fremont got through ice-belt at end of Harbor of Milwaukee.
17th.—Steamer City of Sandusky damaged by fire at Detroit.
18th.—Propeller Messenger four miles from Ludington, in ice.
Propeller Manistee still near Lincoln, in the ice.
Tug Anna Dobbins damaged by ice and sunk at Cleveland.
20th.—Tug Tempest damaged while breaking ice at Grand Haven.
21st.—Propeller Manistee still ice-bound near Lincoln. Has been on the lake in ice fifty-three days.
Propeller Messenger has been carried south by moving ice.
23d.—Propeller City of Fremont seen in the ice twelve miles from Saint Joseph, having been driven about the lake for a week. Returned to Milwaukee 27th.
24th.—Propeller Manistee reached Ludington Harbor all right.
Navigation across Lake Michigan opened, having been interrupted by ice for two months.
25th.—Propeller Messenger reached Milwaukee, having been detained by ice on Lake Michigan since January 26.
Scow Ida H. Bloom damaged by colliding with Clark street bridge, Chicago. Damage $100.
29th.—Steamer B. F. Ferris frozen in between Middle Bass Island and Put-in-Bay, Lake Erie.
31st.—Schooner Alice forced ashore by ice near Point-au-Pelee, Lake Erie, and scuttled.
Tug Leviathan damaged by ice in Lake Michigan, and returned to Milwaukee.
Steamer Dove damaged by ice in Detroit River.

APRIL.

1.—Scow Raven dismasted by colliding with a bridge at Toledo.
1.—Propeller City of Fremont damaged by ice on Lake Michigan. Repaired at Milwaukee.
Sandy McGuire, a sailor, fell from a mast 88½ feet, and fatally injured, at Chicago.
3d.—Schooner Caroline Marsh lost jib-boom at Charlotte, Lake Ontario.
3d.—Light-house at Erie blown down.
Schooner Aldebaran lost foremast by lightning at Buffalo.
5th.—Steamer Dove ran ashore at Ecorse, Detroit River. Got off.
6th.—Schooner Topsey and scow Gladiator lost bowsprits and jib-booms by collision at Chicago.
7th.—Schooner Gamecock damaged by striking on pier at Chicago.
8th.—Scow R. D. Owen damaged by ice at Sheboygan.
Steamer George S. Frost broke her wheel on Lake Huron.
Steam-barge Mary Nills broke from her moorings and drifted ashore at Detroit.
Steam-barge Whetmore and two vessels ran ashore on Belle Isle, Detroit River.
9th.—George Eyre, of propeller Grace Dormer, fell overboard and drowned, near Algoma, Saint Clair River.
Steamer Mason broke her shaft in Saginaw River.
11th.—Barge Mary Stockton broke from her moorings at Detroit, filled, and sunk.
11th.—Barge Lothair broke her rudder at Oswego.
12th.—William Duncan, sailor of schooner Knight Templar, fell from foremast and was seriously injured at Oswego.
13th.—Schooner J. J. Hill ran on East Island, Oswego, and stove a hole in port bow; 2,300 bushels grain wet.
A sailor fell from yawl of schooner Flying Dutchman in Niagara River, and was drowned.
14th.—Steamer City of Toronto stove in her paddle-box by drifting on piles at Niagara.
Tug John Martin lost rudder at Detroit. Recovered by divers.
Steamer City of Dresden ran aground on Belle Isle, Detroit River. Got off.
14th.—Steamer Sheboygan damaged by collision at Sheyboygan.

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Schooner Lewis Ludington lost jib-boom by collision with steam-barge Michael Grot at Chicago.
19th.—Several vessels fast in ice on Lake Michigan.
Barge J. D. Crow drifted on dock at Chatham, Ontario.
20th.—Schooner Citizen sunk and broken up at Fairport, Ohio.
Propeller Benton ran upon middle ground at Port Huron and broke her wheel.
Captain Hume and a sailor of schooner S. J. Collier severely injured by breaking rope, at Oswego.
Schooner Canadian lost jib-boom by collision with schooner Netta Woodward at Oswego.
21st.—Steamer Metropolis damaged by collision with bridge at Manistee.
Schooner Denmark damaged by being run into by steam-barge Michael Grot at Chicago.
Scow, loaded with 130 tons of iron-ore, foundered off Lyons Point, Lake Ontario.
Steamer Seneca struck a snag and sunk near Windsor, Ontario.
22d.—Schooner Mermaid lost bow-sprit and jib-boom by collision with Kitty Gray at Chicago.
Schooner Raleigh damaged on piers at Chicago.
Scow Moneymaker lost bow-sprit by collision with ferry-steamer at Detroit.
23d.—Steam-yacht Clara lost smoke-stack and upper works by collision with schooner Cornelia Amsden, at Detroit.
A dredge sunk by ice at Manitowoc.
Schooner Gamecock damaged on harbor pier, Chicago.
Barge M. Grot lost mast by running into a bridge at Chicago.
Schooner Lucy Graham lost foremast by collision with schooner Wilcox at Chicago.
24th.—Schooner Mary Booth arrived at Chicago leaking badly.
Scow Vampire ran ashore on Chick-a-nola Reef, Lake Erie.
Francis McCavitt, sailor on schooner Thos. H. Mott, fell from mast and fatally injured, at Buffalo.
Schooner Waleska sprung a leak at Sheboygan.
25th.—Barges Banner and Rio Grande ran aground on Saint Clair Flats; got off without damage.
26th.—Schooner Negaunee sprung a leak in the ice on Lake Erie.
Steamer Saginaw broke machinery on Lake Michigan.
Steam-barge Trader slightly damaged by fire.
Schooner White Oak damaged by collision with a bridge at Kingston.
Steamer Milton D. Ward broke wheel in ice at Port Huron.
Schooner Richard Mott lost rudder by ice at Pointo pier, Lake Michigan.
Schooner Sweet Home driven ashore at Wolfe Island, near Kingston, by ice; got off; slightly damaged, and towed to Kingston.
28th.—Schooner Grenada arrived at Toledo after a perilous passage; 2,075 barrels salt lost overboard on the trip from Oswego.
Schooner Wanderer ashore on Kelly's Island; raised and towed to Cleveland.
Scow Sea-Bird ashore on Kelly's Island during a snow-storm.
30th.—Steamer Magnet ashore on Kelly's Island.

MAY.

1st.—Bark T. B. Rice ashore at Kelly's Island, Lake Erie.
Schooner John M. McGee damaged by fire on Lake Huron.
2d.—A sailor named Jorkill Oleson, of schooner Hibbard, fell from mast and broke his leg, at Chicago.
Schooner Curlew crushed her anchor through her hull and became water-logged at Chicago.
Scow Planet parted anchor and went ashore at Evanston, Lake Michigan; got off slightly damaged.
Scow H. G. Williams, coal-laden, hard aground on Carrolton Bar, Saginaw River.
3d.—Schooner Trenton, grain, ashore near Port Colborne; got off and towed to Buffalo.
Schooners H. G. Cleveland and City of the Straits ashore at Long Point, Lake Erie; got off.
Geo. Terry, captain of barge Poland, fell overboard and drowned off Port Huron.
Schooner Lyman Casey beached near Marblehead, Lake Erie; got off slightly damaged.
Propeller Champlain broke wheel in ice at Milwaukee.
Bark Erastus Corning aground at Buffalo.
Schooner D. Dousman lost jib-boom by collision with scow Rust, at Cleveland.
Tug Hagerman broke wheel in ice at Milwaukee.
Schooner Maine damaged by collision at Chicago.
Propeller Thos. A. Scott broke her wheel at Erie.
Schooner Wm. Sturges lost jib-boom by collision with propeller Union, at Chicago.

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Tug Tifft damaged by ice in Milwaukee Bay.
Schooner Tranchmontagne damaged by squall in Lake Erie.
David Myers, sailor on schooner Sea Gem, fell overboard and drowned off Manitowoc.

4th.—Bark John Munm sunk at Kingston.
Tug Perew damag d at Buffalo.
Steamer Canada sprung a leak and was towed ashore near Turtle Light, Lake Erie; fifteen thousand bushels corn damaged; got off and towed to Toledo.
John Campbell, watchman of propeller Vanderbilt, fatally injured by falling into the hold of the propeller at Buffalo.
Scow I. M. Hill broke main-boom on Lake Michigan.

5th.—Schooner Jennie Powell sprung a leak off Toledo and put back to port.

6th.—Schooner Catchpole lost jib-boom and bowsprit by collision with schooner Lake Forest, off Big Point Sauble, Lake Michigan.
Schooner Challenge damaged by collision at Ludington, Michigan.
Tug Sarah Daly damaged by fire at Ogdensburgh.

7th.—Schooner R. P. Mason damaged by colliding with railroad bridge at Milwaukee.
Schooner Riverside lost jib-boom by colliding with a bridge at Chicago.
Tug Goodnow broke her machinery in Detroit River.
Tug Annie Dobbins had her stern damaged by collision in Detroit River.
Schooner American Union ashore at Bois Blanc Island, Straits of Mackinac.

8th.—Propeller Arizona sunk by collision with propeller E. F. Blanchard at Saint Clair Flats; raised and towed to Detroit.
Schooner John T. Mott ran upon a reef near Fox Point, Lake Michigan; got off without damage.
George Sweeny, second engineer of tug Wilcox, killed by machinery at Port Huron.
Steamer Favorite lost anchor in Detroit River.
Schooner Eliza Fischer caught fire off Oswego; 12,000 feet lumber thrown overboard before fire was extinguished.
Propeller Menominee and steam-barge Selah N. Chamberlin ran ashore at Bois Blanc Island in the Straits during a fog; got off.

9th.—Propeller City of Concord damaged by collision with schooner Geo. C. Finney, in tow of tug Merrill, at Milwaukee.
Schooner Cape Horn sunk by collision with propeller Java near Long Point, Lake Erie; crew saved, except Mrs. Jacobs, the cook, who was drowned.
Propeller Manistee struck beach at Port Washington, Lake Michigan, during a fog; got off.

10th.—Propeller Meteor damaged her machinery at Detroit.
Scow U. S. Grant capsized by ice in the bay at Milwaukee.
Schooner W. J. Whaling carried away her main-rigging by colliding with a bridge at Milwaukee.
Bark Gen. Burnside injured by ice off Point Aux Barques; repaired at Detroit.
Schooner Ben Moe and scow Monitor damaged by the ice on Lake Michigan.
Schooner Keweenaw damaged by ice at Detroit.

11th.—Tug M. J. Mills sunk off Sand Beach, Lake Huron; crew saved.
Schooner Cornelia ashore at Menominee, Green Bay; got off with slight damage.
Captain Eades, of schooner Frank D. Barker, had his jaw broken in two places by the handle of a winch.
Steamer Spartan ran ashore on Nine-Mile Point, Lake Erie, during a fog; got off.
Barge Bessie Smith lost anchor at Springwells.

12th.—Schooner Advance lost jib-boom on Lake Michigan.
Schooner Amanda damaged by being run into by propeller Gen. Payne.
Schooner J. A. McDonald sunk at Oswego; raised and repaired.

13th.—Schooner Telegraph damaged by colliding with a bridge at Oswego.
Schooner Maria Annette lost center-board on Lake Ontario.
Schooner Kate Kelly damaged by collision at Oswego.

15th.—Scow Newell Hubbard, lumber-laden, ran ashore on Belle Isle, Detroit River.
Steam-yacht Dime sunk at Lambton, Saint Clair River, by striking on pile.
Schooner Mary Battle arrived at Port Colborne in a dismasted condition, having lost main and mizzen masts during a squall on Lake Erie.
Tug Mystic broke her shaft on Saginaw Bay.
Propeller Lady Franklin broke her wheel at Marquette.
Bark Red, White, and Blue sprung a leak at Buffalo.

16th.—Steamer Eighth Ohio broke machinery on Lake Huron.
Schooner Netta Weaver sprung a leak on Lake Huron.
Propeller Oconto collided with steamer Sheboygan, at Manitowoc, cutting through the steamer's guard to the main-deck.

18th.—Schooner Surprise ashore at Kingston.
Schooner Jessie Scarth ashore at Point Frederick; got off with slight damage.

19th.—Tug Maria Melvin burst her boiler at Oswego.
Steamer Nashua aground on Fighting Island; got off.

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20th.—Bark Chandler J. Wells, corn-laden, collided with schooner Havana, off M-waukee. The Havana lost bowsprit, jib boom, and head-gear. The Wells was damaged to the extent of $1,500 or $1,600, and was towed back for repairs.
Steamer Muskegon broke her connecting-rod off Muskegon.
21st.—Scow Minnie Corlette capsized and filled with water at Pentwater. Raised and towed inside, and capsized again.
Barge Lillie May damaged by collision with barge Paragon at Windsor.
Schooner Alice B. Norris ran ashore on South Fox Island during a fog. One hundred and fifty tons coal jettisoned. Got off with $1,200 damage.
22d.—Schooner Cascade lost bowsprit by collision with propeller Meteor at Marquette.
Albert Anderson, a passenger on steamer Dime, fell overboard and drowned at Ontario.
Alexander Jessamer, of schooner Mears, fell upon deck and killed near Manitou Islands.
23d.—Patrick O'Donell, second engineer of propeller City of Detroit, killed by falling through hatchway at Detroit.
24th.—John Breen, sailor, fell from a mast at Bay City, and was fatally injured.
Barge Ocean towed to Detroit leaking.
Schooner "E. C. L." ran ashore during a fog at Washington Harbor. Got off without damage.
Propeller Georgian ran upon a shoal in the channel opposite Gananogue, and sprung a bad leak.
25th.—Propeller Milwaukee ran ashore in Saint Clair River. Got off without damage.
Schooner Cecelia ashore on Black Creek, near Muskegon, Michigan.
26th.—John Maythem, engineer of tug Frank Perew, seriously scalded at Buffalo.
Schooner Willie Keller lost mizzenmast by colliding with bridge over Welland Canal.
Schooner Grace Murray, iron ore, ashore on Charity Shoals.
Propeller Mohawk ran ashore at North Point, Milwaukee, during a fog. Got off without damage.
John Gillan, captain of schooner W. H. Converse, drowned in Lake Ontario.
27th.—Schooner Traveler ashore at Sheboygan. Got off without damage.
Schooners John Miner and Pilgrim damaged by collision at Chicago.
Schooner Gem lost head-gear, jib-boom, and bowsprit by collision with propeller Alaska off Kenosha, and was towed back to Chicago.
Barge Mercury lost mainmast and schooner J. C. Harrison damaged to the extent of $1,000 by collision at Chicago.
Schooner Reuben Doud ran ashore on East Sister Reef, jettisoned 1,800 bushels wheat, and got off.
Canal-boat P. Quin sunk at Oswego; 3,500 bushels wheat damaged.
28th.—Tug Allanson Sumner, with barges in tow, collided with schooner J. Scarth, and twisted off her stem, and schooner put into Kingston leaking.
29th.—Schooners Gesine and Portland damaged by collision at Milwaukee during a squall.
Schooner Honest John struck against a pier at Chicago during a storm; badly damaged.
Schooners C. C. Butts and Cousin Mary towed into Chicago water-logged.
Bark Montmorency lost jib-boom and head-gear on Lake Erie during a storm.
Schooner Empire State lost jib-boom and foretopmast and sprung her foremast on Lake Erie during a storm.
Bark Monitor aground on Peach Island, Saint Clair River.
Schooner Seventh Ohio had her bow stove in at Michigan City.
Schooner Jura ashore near Port Peter light.
A man named Tyrle was fatally injured by a fall from propeller Lake Michigan at Kingston.
Edward Bowler, sailor on scow Industry, jumped overboard and drowned near Port Huron.
Scow Ella Doak lost jib-boom at Racine.
30th.—Steam barge Eclipse ashore on Grassy Island, Detroit River.
Canal-boat H. Farrell sunk by propeller St. Lawrence at Montreal.
Schooner St. Peter arrived at Chicago with all her bobstays broken.
Propeller Meteor broke her wheel at Marquette.
Schooner Hungarian arrived at Chicago minus her small boat.
Bark Tanner and schooner Swallow collided in Point-au-Pelee passage. Swallow towed to Milwaukee, having lost her bowsprit and head-gear by the collision.
31st.—Schooner E. A. Nicholson ashore and scuttled near Erie. Raised and towed Erie.
Propeller Equinox ashore in Detroit River.
John Gray fell overboard and drowned from lighter Perkins at Bay City.

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JUNE.

1st.—William Spence, a sailor on schooner W. F. Merrick, fel overboard and drowned in Lake Ontario.
Tug Fulton lost rudder at Oswego.
2d.—Barge Magnet became water-logged by collision with a barge in tow of tug Jesse Hall, and was towed to Oswego.
3d.—Scow Mary Jane driven ashore by a storm on the east point of Put-in-Bay.
Schooner W. P. Allen struck State-street bridge, Chicago, carrying away jib-boom and head-gear.
Schooner William Jones lost jib-boom and head-gear by collision with schooner Gladiator off Chicago.
4th.—Propeller City of Chatham burned to the water's edge at Hamilton, Ontario; seven hundred barrels of flour burned.
Schooner I. D. Hungerford had her foretopmast splintered by lightning at Toledo.
Scow Lime Rock struck a snag and sunk in the Thames River. Raised and repaired.
Schooner Crossthwaite damaged by collision at Buffalo.
5th.—Propeller Peerless lost key of wheel off White Fish Point, Lake Superior. Towed to Sault Ste. Mary.
Schooners Quinlan and Jennie Graham collided at Welland Canal.
Scow Mary Amelia driven ashore in Saint Clair flats by a squall and lost staysail, mainsail, and anchor.
Bark Dundee ashore at Morgan's Point, Lake Erie; got off with slight damage.
Scow Blue Bell lost canvas on Lake Michigan.
Schooner Warren badly damaged by collision with propeller Bertschy off Vedder's Pier, Lake Michigan, during a fog.
6th.—Steamer Minnie Sutton broke her crank in Saginaw River.
Schooner Cascade ashore on Point-au-Pelee; got off with slight damage.
7th.—John Bearley, sailor on schooner Echo, drowned at Oswego.
Propeller Meteor burned at Detroit; a total loss. Andrew Briggs, colored porter, burned to death.
Schooner City of Manitowoc ran ashore at Racine; lightened off without serious damage.
8th.—James McLaughlin, sailor on schooner Amaranth, fell overboard and drowned near North Manitou, Lake Michigan.
Barge City lost bulwarks and deck-load of lumber in Detroit River, by shifting cargo.
Schooner C. N. Johnson broke her mast on Lake Michigan.
A man named Bushey drowned by falling overboard from steamboat Anglim, at Kingston.
9th.—Schooner Catchpole lost head-gear and had her bow stove in by collision at Chicago.
Tugs Nagle and Geo. W. Wood damaged by collision at Chicago.
P. Duffey, sailor of schooner Madeira, killed by a fall from mast at Port Colborne.
Schooner D. Freeman and barge Wm. Cowie became fast in the locks at Port Dalhousie.
Schooner Annie Sherwood ashore at Herson's Island; got off without damage.
Propeller Passaic collided with bridge at Cleveland.
Schooner Milwaukee Belle lost jib-boom by running into a dock at Chicago.
10th.—Tug Gardner broke her shaft at Buffalo.
Schooner Mary E. Perew ashore in a fog at Crawford's Quarry, Lake Huron; got off and towed to Detroit.
11th.—Schooner Gen. Worth, coal, ran hard aground on Grassy Island, Detroit River; got off and towed to Detroit.
Steamer Comet hard aground in Saint Clair River.
Propeller Favorite ashore at North Point, Milwaukee.
Steamer A. Eaton and a barge with lumber ran ashore on North Point during a fog.
12th.—Barge Royal Oak, with 14,000 bushels wheat, run into and sunk by propeller Dromedary in Saint Lawrence River.
Schooners Ida and A. Rust collided at Chicago. The Ida had her bulwarks stove in, and the A. Rust lost jib-boom and head-gear.
Schooner Peter damaged by collision with barge Herschel at Chicago.
Elias Seelye, captain of lighter General Case, drowned at Saginaw City.
Bark Massilon ashore at White Fish Point; got off after having jettisoned deck-load of ore.
13th.—Schooner C. C. Trowbridge lost bobstays and head-gear by collision at Chicago.
Schooner W. G. Grant ashore near Manistee; a total loss.
Schooners Emma and Island ashore at Frankfort, Michigan.
A sailor of propeller Kincardine drowned off Toronto.
Propeller Lake Breeze disabled on Lake Michigan and towed to Grand Haven.

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Joseph Gregory, sailor of barge David Andrew, fell overboard and drowned at Toronto.

15th.—Schooner Rush sprung a leak on Lake Michigan, near Muskegon.
Propeller Alleghany aground on Saint Clair flats.

16th.—Schooner Racine struck pier at Chicago and stove a hole in her side.
Propeller Toledo ashore on Graham Shoals in the straits; got off without damage.

17th.—Tug Bartlett badly damaged by collision with propeller China at Detroit.
Schooner William Crossthwaite aground in Nebish Rapids, Saint Mary's river; got off slightly damaged.
Schooner Great West lost foretopmast during a heavy squall on Sturgeon Bay.

18th.—Schooner Emma Leighton lost jib-boom by being run into by steam-barge W. T. Graves, at White Lake, Lake Michigan.

19th.—Propeller Toledo and schooner C. North damaged by collision at Chicago.
Steam-barge Kitty Friel burned to the water's edge at Newborough.
Schooner Senator ashore at Pipe Island, Lake Superior; got off and towed to Marquette.
Propeller Hurd broke her shaft on Lake Michigan; towed to Northport.
Tug Laketon lost raft of timber during storm on Saginaw Bay.
Steamer Minnie V. sunk at dock at Superior City; raised and repaired.

22d.—Tug Wm. Goodnow lost raft off Rond Eau.
Schooner Miami lost foretopmast and head-sails during a squall off Rond Eau.
Tug Tillinghast badly damaged by striking dock at Erie.
William Brand, sailor on schooner H. P. Murray, was drowned at Chatham.
Thomas McKeon, sailor on schooner J. V. Ford, fell overboard and drowned in Lake Michigan.

21st.—Schooner A. B. Moore totally dismasted during a squall on Lake Michigan.
Schooner J. A. McDonald sunk at East Cove, Oswego; got off slightly damaged.
Steamer Minnie Sutton blew out her cylinder-head.
Schooners Fostoria and C. North collided at Chicago.
Steamer Magnet ashore in Saint Clair River; got off.
Steamer Grace Dormer broke machinery at Port Huron.
Schooners Elvira and Mary Grover damaged by collision at Welland Canal.
Steamer Spartan ran ashore on Lake Erie; got off.

22d.—Tug G. M. Farrar exploded boiler at Port Huron
Propeller Granite State damaged canal at Allanburg.
Schooner Phineas Marsh ashore on South Fox Island.

24th.—Schooner Mosher aground at Chicago.
Schooner John Webber ran ashore below Chicago during a fog; got off, leaking badly.
Scow Louisa had her bow stove in, and lost foremast and bowsprit, by being run into by a tow, in Detroit River.
Scow Lizzie passed Detroit in a dismantled condition.
Schooner Charger driven ashore by a tornado near Bar Point, Lake Erie.
Steam-barge Henry Howard ran upon a reef near Port Crescent, Lake Huron

25th.—Propeller Prussia broke her wheel on Lake Ontario.

26th.—Propeller Pacific and schooner Guiding Star ashore at Detour; got off.
Peter Mills, sailor, of schooner Acoutias, drowned at Allanburg, Ontario.
Schooner Goshawk ashore at Detour; got off.
Schooner Gen. Cook passed Detroit in a dismantled condition.
Three tugs ashore at Chicago during a fog.*
Captain W A. Smith, of tug Farrar, killed by explosion of the tug at Port Huron.

27th.—Steam-barge Petronelle, staves, ran ashore and sunk at Middle Bass Island; got off, badly damaged.
Tug Mystic broke her machinery at Detroit.

28th.—Propeller City of New York ran ashore during a fog near Oswego; got off slightly damaged.
Tug Kate Felcher filled and sunk in Saginaw River.
United States steamer Michigan nashore on Traverse Point, Lake Michigan; got off by propeller Brooklyn.
Steam-barge Monitor struck harbor-pier at Kenosha, and badly damaged rail, &c.
Schooner Raleigh aground at Milwaukee; got off.
Schooner Kate L. Bruce damaged by collision at Welland Canal.
Steam-barge East Saginaw and tug Brady ran aground in Detroit River; got off without damage.

29th.—Schooner Anna Laura sunk a canal-boat by collision at Chicago; 6,000 bushels corn damaged.
Lighter Bay City sunk while loading at Bay City.
Steam-barge Pittsburgh struck a rock in Niagara River and broke her rudder.

30th.—Steamer Mason stove a hole in her hull and was run aground on Crow Island, Saginaw River.
James Daniells, sailor, on bark C. K. Nims, fell overboard and drowned, off Ba

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JULY.

1st.—Schooner Charger ashore at Malden; raised and repaired.
Steamer Grace Truscott blew out her cylinder-head at Detroit.
Tug Nellie Cotton broke her wheel at Bay City.
Propeller City of Detroit and barge Guiding Star ran ashore at Oak Creek, Lake Michigan, during a fog; got off without injury.
Schooner Minnie Mueller lost foresail and flying-jib during a squall near Death's Door, Green Bay.
Bark Mary Battle arrived at Port Colborne with foretopmast gone, and the bark Dundee with sails damaged.
Tug Bartlett lost smoke-stack on Detroit River.
Propeller City of New York broke her wheel at Oswego.
Schooner Reciprocity badly damaged by collision with propeller Philadelphia, at Milwaukee.
2d.—Schooner G. S. Seaver ran into tug Louie Dale near Chicago and split her stem.
Tug Samson and raft of lumber driven ashore by storm at Port Burwell.
Steam-barge Buffalo disabled by breaking shaft off Long Point, Lake Erie.
Schooner Sea Star, schooner Clarissa, and tug Satisfaction, damaged by collision at Chicago.
3d.—Schooner Provost damaged by squall at Toledo.
Propeller Georgian slightly damaged by fire near Ogdensburgh.
Schooner Guido Pfister and bark Parana collided in the straits.
4th.—Bark Constitution, schooners Frank Peren, Nabob, Comanche, Elida, G. D. Norris, and Col. Cook, damaged by storm on Lake Michigan.
Tug Ida damaged by being run into by propeller Oconto at Chicago.
Schooner R. G. Simmons damaged by colliding with bridge at Chicago.
Peter Galleher, wheelman on propeller M. Groh, fell overboard and was drowned at Chicago.
Schooner Turner and Keller lost all her canvas in the straits.
Schooners D. A. Wells and Zach Chandler, and scow D. R. Holt, lost canvas off Sheboygan.
Ebenezer Jones, sailor on schooner W. F. Allen, killed by falling from mast at Chicago.
Schooner Senator Blood ran on Gull Island Shoal during a fog; jettisoned 1,000 bushels corn and got off.
Schooner St. Andrew struck by lightning and had her mainmast splintered on Lake Michigan.
Schooner Mary Elizabeth damaged by squall on Lake Superior.
Schooners Glad Tidings, Florence, and Correspondent damaged by storm on Lake Michigan.
th.—Bryan W. Hugh, captain of barge Jacques Cartier, drowned in Saint Clair River.
Steamer Philadelphia struck a rock and sunk on Bar Point at the head of Lake Erie. Raised and towed to Detroit.
th.—Tug L. B. Johnson damaged by fire at Chicago.
Propeller Montana broke piston-rod on Lake Erie.
th.—Brig N. M. Standart and schooner Emma Leighton damaged by collision at Chicago.
Schooners Adirondack and Willard damaged by collision at Chicago.
Schooners Dispatch, Red Wing, and Seventh Ohio lost canvas and part of rigging by a squall on Lake Michigan.
Barge Ironton and schooner John Burt aground at Nebish Rapids, Saint Mary's River; got off; Ironton badly damaged.
Steamer Algona broke her wheel on Lake Superior.
Schooner Gipsey and barge Sonora collided at Chicago.
h.—Steam-barge Sanilac broke her wheel at Alpena.
Schooner W. H. Olds lost jib-boom off Sodus, Lake Erie.
Barge I. Bentley damaged her rigging badly by colliding with bridge at Oswego.
th.—Wm. Jung, mate of schooner Arcturus, drowned at Chicago.
Schooner S. J. Holley struck in Racine Harbor; pulled off, and towed to Milwaukee.
Schooners Prince Alfred and Madeira damaged by collision at Saint Catherine's.
Barge Hope became water-logged at Clayton and was towed to Oswego.
Schooner Mariner struck by lightning on Lake Michigan.
th.—Propeller Empire struck a rock and sunk at Gananogue.
Propeller St. Paul broke her machinery on Lake Huron and was towed to Detroit.
Tug J. U. Masters went ashore near the light-house at Port Huron.
Schooner Reuben Doud struck a shoal near Point-au-Pelee; got off slightly damaged.
Schooner Louise McDonald damaged by collision with a propeller off Chicago.
h.—Schooner Ida damaged by a stroke of lightning at Manistee.

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Schooner Reindeer struck on beach at Clay Banks and sprung a leak; repaired at Manitowoc.
Tug B. F. Bruce aground in Detroit River.
Ferry-steamer Hattie Brown broke her shaft.
Tug Rob Roy broke her wheel near Oswego.
Barge Herschel and schooner St. Peter collided at Chicago.
Schooner Lomie A. Burton jammed in Lake Erie; pulled off by a tug.
Steamer Ballantine broke her shaft on Lake Erie.

13th.—Propeller Merritt foundered on Lower Saint Lawrence; crew all saved.
Schooner Northern Belle sunk by collision with schooner Annie Vought in the straits. Vought slightly damaged and Northern Belle a total loss.
Schooner Nabob badly damaged by collision with bark Elizabeth Jones near Sheboygan.

14th.—Steamer Northwest broke her wheel at Cleveland.
Schooner Adriatic badly damaged by colliding with schooner Mary off Chicago, during a heavy squall, and had to be towed back.
Schooner City of Milwaukee struck by lightning at Cleveland.
A colored fireman of tug Wm. Pringle drowned in Saginaw River.
Propeller City of Toledo broke her shaft at Chicago.
Schooner Eveline Bates parted her chain and drifted against pier at Kelly's Island.

16th.—Schooner Comanche damaged on Saint Clair Flats.
Schooner Harvest Home lost main-boom during a squall off Grand Island, Lake Superior.

17th.—Patrick McNamara, a sailor on schooner Pilgrim, was drowned off Chicago.
Scow Eugene had her foremast and head-gear carried away by collision with a tug near Marine City.

18th.—Schooner Eureka ashore at Port Colborne; got off.
Tug B. W. Aldrich burned at Ludington.
Tug Mystic broke her shaft on Lake Saint Clair.
Schooner William Elgin sprung a leak and put back to Kingston for repairs.
Schooners Eagle Wing and Donaldson, ore-laden, ran aground on Saint Clair Flats; lightered off without much damage.
Steam-barge City of Port Huron and barge Dictator on the rocks at Nebish Rapids.
Canal-boat Jesse Van Riper sunk by collision at Black Rock.
Schooners Kate Lyons and Welland damaged by collision off Chicago.
Schooner S. J. Luff struck a reef near the straits and damaged her forefoot and keel.

19th.—Steam-barges Fred Kelly and Robert Holland ran aground in Saint Clair Flats.
Schooner E. R. Blake ran ashore in Green Bay; lightered off.
Schooner Gold Hunter struck on bar while leaving Vermillion Harbor; repaired at Cleveland.
Schooner Morning Star lost mainsail and after-rigging by being run into by the Prince of Wales off Nine-Mile Point, Lake Erie.
Tug A. F. Bartlett broke her cylinder-head at Detroit River.

20th.—Schooner Persian ashore at Evanston; got off without damage.
Propeller Equinox aground on Saint Clair Flats; pulled off by tug Merman.

21st.—Propeller Winslow aground at Bar Point, Lake Erie.
Steam-barge Chas. Reitz badly damaged by collision with tug Johnson at Chicago.
Schooner Conquest and tug Wood damaged by collision with tug Harrison at Chicago.
Schooner Enterprise run into by propeller Clematis at Chicago.
William Sinclair, sailor, drowned in Saint Clair River.

22d.—Schooner Barber had her stern badly damaged by being run into by barge coming at Chicago.
Schooner Ariadne ran on the Ducks on Lake Ontario, during a fog; pulled off without damage.

23d.—Tug H. P. Clinton and a vessel ashore at Malden; released without damage.
Schooner Josephine ashore at Pentwater; got off.
Scow Alpena water-logged on Lake Erie; towed to Cleveland.
Barge Sandusky damaged by collision with bark Maria Martin at Milwaukee.
Propeller Bruno ashore in Detroit River.
Propeller S. D. Caldwell damaged stem by collision in straits.
Steamer Jay Cooke broke rudder at Toledo.

24th.—Steamer Ballentine struck a rock at entrance to Detroit River, and sprung a leak; towed to Detroit for repairs.
Schooner E. P. Dorr, corn, ashore on Charity Shoals, Lake Erie.
Schooners Odin and Denmark badly damaged by collision off Ahnapee, Lake Michigan.
Schooner Antelope sprung a leak at Port Huron.

25th.—Schooner Two Brothers lost jib-boom and foremast-head, off Oswego, in gust of wind—towed back for repairs.

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Steamer Abyssinian caught fire on Lake Ontario—extinguished, with but slight damage.
Steam-barge Herald sunk by collision with propeller Dunkirk on Lake Huron.
David Thorburn, mate of Herald, drowned.
Schooner Sunrise had her foremast shivered by lightning on Lake Erie.
Schooner Rival sunk at Bay City.
Wm. Irving, captain of schooner Gilmcar, fatally injured by falling off boom at Bay City.
Tug Hercules broke her crank in Detroit River.
Tug Annie L. Smith badly damaged by collision with tug Nagle at Chicago.
Schooner Gallatin sprung a leak at Erie—raised, and towed to Cleveland.
26th.—Steamer Ball ran upon a pile at Bay City, and was beached to prevent sinking.
Steam-barge Wm. Cowie struck a rock below Alexandria Bay—got off, and was towed to Ogdensburg.
Brig Mechanic sprung a leak while lading at Marquette—raised and repaired.
27th.—Chas. A. Tuttle, deck-hand on propeller Passaic, fell overboard and drowned in Saginaw Bay.
28th.—Tug Ada Allen sunk at Chicago—raised.
29th.—Richard McGuire, of schooner Helen Blood, jumped overboard and drowned off Sheboygan, Lake Michigan.
Nicholas L. Young, of propeller Java, fell overboard and was drowned near Cleveland.
Wm. Fisher, of tug Charles W. Parker, crushed between tug and schooner Tempest at Chicago, and seriously injured.
Peter McFee, fireman on pile-driver at Michigan City, fell overboard and drowned.
30th.—Schooner Emma C. Hutchinson sprung a leak on Lake Erie.
Schooner Fearless sprung a leak on Lake Ontario.
31st.—Antoine Fortan fell overboard from a scow and was drowned off Grosse Point.

AUGUST.

1st.—Tug Blanchard got a log in her wheel at Chicago.
Propeller Nebraska got a log in her wheel at Buffalo.
Schooner Lucky damaged by collision with a propeller off Cleveland.
Nicholas Bartley, mate of Schooner Portage, fell from masthead and seriously injured at Toledo.
Schooner Garibaldi sprung a leak on Lake Michigan.
Steamer Bob Hacket damaged to the extent of $1,000 by being run into by steamer Transit at Detroit.
1.—Schooner Hattie Johnson lost jib-boom by striking Sixth-street bridge at Milwaukee.
Schooners Knight Templar and Caroline Marsh damaged by collision at Point Peter, Lake Ontario.
Tug Admiral D. D. Porter ran ashore at Oak Point, Lake Ontario. Got off.
Bark Fame sprung a bad leak off Gravelly Bay, and put back to Buffalo.
Scow Sea Star sprung a leak on Lake Michigan.
Schooner Wm. Elgin sprung a leak on Lake Erie.
..—Schooner Superior, ore, ran aground near Round Island at head of Sault River; slightly damaged.
h.—Scow Fire-Fly towed to Green Bay in a sinking condition.
h.—Ferry-boat Milton Cowbright destroyed by fire at Saint Clair.
h.—Propeller Tioga ashore on Niagara Reef between West Sister and Green Islands.
Schooner A. Rust struck on a rock and became water-logged at Alpena. Raised and towed to Bay City.
Schooner Rob Roy damaged by colliding with a bridge at Chicago.
Propeller Calabria broke her machinery in the Saint Lawrence and was towed back to Kingston.
Tug Adventure broke a lock on Rideaux Canal.
Steamers Princess of Wales and Silver Spray damaged by collision in the bay at Toronto.
. A scow overloaded and sunk at Toledo.
Tugs Perry and Satisfaction damaged by collision at Chicago.
Schooner Portage lost her foremast-head during a gale on Lake Erie.
Tugs Dick Davis and Ida H. Lee damaged by collision at Milwaukee.
Schooner Souvenir sprung a leak on Lake Michigan and put into Grand Haven for repairs.
Schooner Arcturus struck on a reef while entering Chicago; towed inside in a sinking condition.
Iron propeller Russia disabled by breaking her wheel near Detroit.
A vessel ran aground near False Presque Isle; 500 barrels salt thrown overboard.

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8th.—Tug Prindiville ran into ferry-scow at Tonawanda and cut her in two. Damage, $600.
9th.—Schooner Flying Mist ran foul of schooner Mary A. Wand and lost her anchor. The Wand badly damaged.
Schooners Keith and Regular damaged by collision at Chicago.
Schooner W. H. Willard lost jib-boom on Lake Michigan.
10th.—Steam-barge Vanderbilt ashore at Pike's Bay, Lake Huron.
11th.—Tug H. N. Martin and schooner Melvin damaged by collision with bridge at Cleveland.
Canal-boat Samuel Morgan sunk at Buffalo; 8,200 bushels corn damaged.
Bark Oneonta reached Chicago minus her foretopgallantmast.
Schooner Sardinia arrived at Chicago in a sinking condition.
12th.—Schooner A. C. Maxwell, ore-laden, ashore at Bar Point, Lake Erie. Jettisoned part of her cargo and got off.
John Cadath, sailor on Barge Fulton, seriously injured by a fall through a hatchway at Bay City.
Steam-barge Mary Groh sprung a leak at Cleveland.
Scow Sassacuss ran ashore at Ford Shoals. Pulled off by a tug.
13th.—Barge J. D. Morton, during rough weather on Lake Erie, broke loose from tow of steam-barge Sun, and went to pieces.
Barges Globe and Sunburg run ashore on Kelly's Island. Globe raised and towed to Buffalo, Sunburg to Detroit.
Schooner David Stewart arrived at Cleveland in a leaking condition.
Steamship W. T. Graves put into Milwaukee in a disabled condition. Boiler gave out.
Schooner S. S. Osborn lost her bowsprit and head-gear by collision on Lake Huron.
Scow Senator had her foretop-mast broken and lost canvass during a squall on Lake Erie.
Propeller Shickluna, salt, struck the rocks and sunk on Weaver's Point, Lake Ontario. Raised and towed to Kingston.
A barge reported ashore on Chick-a-no-la reef, Lake Erie.
14th.—Schooner Chapin arrived at Chicago, leaking badly.
Schooner Carolina Marsh lost eight or ten thousand feet of lumber of deck-load by a gust of wind while off Oswego.
Tug W. B. Castle and schooner Ætna shored on Middle Ground at Point Edwards. Got off with slight damage.
Scow-barge H. G. Williams ashore on Cedar Point, Sandusky Bay. Total loss.
Daniel Berry, lock-tender, drowned in the Welland Canal.
15th.—Schooner S. Armsden slightly damaged by collision at Cleveland.
Brig Pilgrim lost her top-sail yards during storm off Chicago.
Steam-barges New Era and General Paine, with barges in tow, put back to Chicago on account of heavy weather.
Charles Nelson, sailor, of bark Carrier, fell overboard and was drowned.
Bark Menominee and schooner Sinai lost their top-sails on Lake Michigan during a storm.
Tug Edward Gallagher exploded her boiler on Torch Lake, Lake Superior. J. H Olds, of Hancock, instantly killed.
16th.—A sailor, of schooner Minerva, jammed between tugs Lowie Dole and Annie L. Smith at Chicago, and injured so that he died in a few hours.
Barge Sunshine became water-logged and lost deck-load of lumber off Bark Shanty, Lake Huron.
Schooners Addie and Dora disabled by a storm on Lake Michigan. Put into Benton Harbor.
Schooners Gifford and Ætna collided on Lake Huron. One man lost and one badly injured.
17th.—Steam-barges Buffalo and Bradbury had a rough passage across Lake Huron and barges Sunshine and Saint Clair in tow were water-logged.
18th.—Judson Mesler, sailor on schooner Wm. Jewett, drowned off Sodus.
19th.—Schooner J. Rigler lost part of canvass off Forty-Mile Point.
Schooner Kearsarge became water-logged on Lake Michigan and was towed to Milwaukee by propeller Lawrence.
Alexander Campbell, captain of bark Manzanilla, drowned at Port Dalhousie.
20th.—Henry Alston, sailor of Bark J. G. Masten, fell into river at Buffalo and was drowned.
Schooner Laura ran aground at month of River Thames.
Schooner Wm. Jones lost jib-boom, &c., by colliding with bridge at Chicago.
21st.—Steamer Atlantic lost mast by collision at the head of Saint Clair River.
Brig Starlight and schooner Cortez damaged by collision near Mammy Judy light, Detroit River. Schooner Cortez damaged to extent of $400.

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d.—Schooners Japan and Planet damaged by collision off Sheboygan. Planet put into Sheboygan for repairs.
Tug Black Ball cut off the stern of schooner Maria Martin, and damaged her to amount of $1,000 by collision in Detroit River.
Schooner Milwaukee Belle ashore on Chambers Island, Green Bay. Threw deck-load overboard and got off.
John Hunter, mate of schooner West Wind, drowned off Toronto.
Tug Witch of the West broke her shaft at Bay City.
Steam-barge Vanderbilt on bar mouth of the Thames River.
Schooner Laveland damaged chain-flutes, &c., in a jam on Saint Clair Flats.
d.—Barge Oliver Cromwell and brig Orkney Lass sprung a leak while lading at Marquette, Lake Superior, and sunk beside the docks.
Alonzo Pearson killed by falling from mast of schooner F. Morell.
Steamer Eva English damaged on Saginaw River.
Schooner Express damaged on Lake Erie.
Schooner M. L. Collins ashore in Detroit River.
h.—Schooners Westchester and Flying Mist damaged by collision at Chicago.
Schooner Mary Collins lost jib-boom and bowsprit by collision with propeller Arizona at Erie.
h.—A small schooner sunk by striking dock at Chestnut-street bridge, Milwaukee. Raised and repaired.
Barge Saint Clair water-logged on Lake Huron.
Scow Planet sprung a leak at Milwaukee.
Schooner C. Harrison became water-logged at Evanston, and was towed to Chicago.
Propeller City of Fremont burst a flue on Lake Michigan. Detained seven or eight hours.
Schooner A. W. Lacky, ore-laden, broke her rudder on Saint Clair Flats.
Steam-barge Vienna and barge Verona ashore at Presque Isle, Lake Huron. Vienna got off without damage and Verona filled with water.
Steamer Young America ran ashore on Fighting Island.
Schooner S. P. Ely aground in Nebish Rapids.
.—Propeller Oneida struck on Belle Isle; aground fourteen hours and got off.
Schooner Marion Egan ashore at Cove Island, Georgian Bay. A total loss.
Schooner Gerritt Smith sprung a leak in the straits. Towed to Detroit by the tug Leviathan.
Schooner Maggie M. Rae water-logged on Lake Erie. Towed to Detroit River and there capsized.
.—Schooner Montana, ore-laden, grounded on Belle Isle, Detroit River.
.—Schooner Senator passed Detroit in a dismasted conditon.
Alexander Ross, mate of bark Tanner, was drowned at Buffalo.
Bark Acorn put into L'Anse, Lake Superior, in a leaking condition.
Schooner Comanche shifted cargo and arrived at Oswego with nearly 1,000 bushels wheat wet.
Eli Smith, sailor of barge Severn, drowned at Buffalo.
Steam-barge Mary Robertson arrived at Chicago in a leaking condition.
Propeller Waleska broke her wheel at Chicago.
.—Propeller Cleveland ashore at Middle Island, Lake Huron. Pulled off with slight damage.
Byron Robinson, of yacht Mazeppa, drowned at Coburg.
Barge Comet became water-logged on Lake Michigan. Towed to Chicago.
Schooner Cambridge struck and sunk while leaving L'Anse, Lake Superior.

RECAPITULATION.

	January.	February.	March.	April.	May.	June.	July.	August.	Total.
.....	....	1	1	5	12	8	7	7	41
oyed by fire.....	....	....	....	....	....	3	1	1	5
ged by fire	....	....	1	1	3	....	3	....	8
sted.....	....	....	....	1	....	5	....	1	7
led, damaged, &c.....	9	....	2	17	31	30	48	29	166
ged by collision.....	....	....	....	14	30	18	38	28	128
c by lightning	....	....	....	1	....	1	5	....	7
-logged.....	....	....	....	1	2	1	2	9	15
g a leak	....	....	....	4	4	1	9	18	36
e and aground.....	....	1	....	14	33	36	33	26	143
Total.....	....	....	....	....	....	....	....	....	556

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Sailors, drowned, &c.

Drowned				2	7	11	11				
Killed by fall, &c					3	3	2				
Seriously injured				4	6		1	3			
Total											

PAPER 30.

WAR DEPARTMENT, OFFICE OF THE CHIEF SIGNAL-OFFICER,
Washington, D. C., July 26, 1873.

SIR: I have the honor to report as follows: Having, in accordance with Special Orders No. 67, arrived at the scene of the tornado in Iowa, I there, to the best of my ability, endeavored to carry out the special instructions which I had received. The result is contained in the report herewith submitted.

Very respectfully, your obedient servant,

JAS. MACKINTOSH,
Observer-Sergeant Signal Service, U. S. A.

Gen. ALBERT J. MYER, *Chief Signal-Officer of the Army.*

WAR DEPARTMENT, OFFICE OF THE CHIEF SIGNAL-OFFICER,
DIVISION OF TELEGRAMS AND REPORTS FOR THE BENEFIT OF COMMERCE.
Washington, D. C., May 26, 1873.

SERGEANT: Upon arriving at Washington, Iowa, in compliance with Special Orders No. 67, O. C. S. O., of this date, you will at once proceed to the scene of the recent tornado near that place, and locating the point where it first struck the earth, will follow its path as far as its progress can be distinctly traced, giving particular attention to the following points suggested by the Chief Signal-Officer:

1. Trace accurately the course of the tornado, and determine whether its movement was direct, or whether it swerved at any time from a direct course, and, if so, the cause of such deflection.

2. Ascertain the velocity of wind in the whirl of the tornado; estimating this, as more accurate data cannot be had, from its effect upon inanimate objects, as for example, weight of objects moved, with area of surface of such objects exposed to the action of the wind.

3. Ascertain if objects were carried directly upward in the interior of the whirl without a whirling motion and thrown out at top, or whether they ascended in circles, whirling upward with the whirl of the tornado.

4. State if there are any evidences that the center of the tornado was a vacuum, as for examples: were trees wholly stripped of bark; did houses explode outward.

5. Ascertain if the tornado appeared to be attached at its upper extremity to a mass of clouds, or to a single and small cloud.

6. Were there any electrical discharges accompanying the tornado?

7. Was the tornado seen, before its complete formation, as a tongue of cloud hanging down from a mass of clouds?

8. Did it any time cross a body of water; and, if so, did it assume at that point the character of a water-spout?

9. Did the tongue of cloud, reaching toward the earth, distinctly whirl itself, or was it stationary, with a whirling column of air rushing up its interior?

10. Collect reliable data as to the greatest height to which objects were elevated and their weight.

11. Ascertain the condition of air outside the tornado, and whether the wind blew toward it from all directions.

12. Were there any premonitory signs of an approaching storm before the tornado struck the earth?

13. Where did the tornado originate, and where terminate?

14. Determine particularly whether the cloud from which the tongue of cloud depended had a rotary motion, or whether the tongue of cloud itself had one.

15. Duration of tornado, and progressive velocity.

16. Actual width of belt affected by the tornado.

17. Note the general direction of prostration of trees, being careful to allow for change of direction caused by striking the earth.

18. You will prepare a series of questions to which answers will be obtained from the most intelligent citizens living in and along the track of the tornado, so that same questions may be answered by different persons.

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In addition to these points, you will investigate such others as will tend to give a connected and full record of the origin, progress, and disappearance of the meteor.

Having completed your investigation of the Iowa tornado, you will proceed to the location of the one reported in Illinois as raging on the same date, and follow out the same course of inquiry as for the Iowa storm.

Take ample time to do the work thoroughly, and report your location from time to time by telegraph.

Very respectfully, &c.,

H. W. HOWGATE,
Second Lieut. and Bvt. Capt., Acting Signal Officer and Assistant.

Sergt. JAS. MACKINTOSH,
Observer Signal-Service, U. S. A., Washington, D. C.

THE IOWA AND ILLINOIS TORNADO OF MAY 22, 1873.

STATEMENT OF THE FACTS.

This tornado could not by its destructive efforts upon trees, buildings, &c., be traced farther back than section 35, Warren Township, Keokuk County, Iowa. At the point where the destruction commenced, the South Skunk River bends southward and then again to the east, thus half inclosing a low level area of about one mile in length by half a mile in breadth. This bottom-land is surrounded by bluffs about 70 feet in height on nearly all sides, the river flowing close to the bluff on the southwest. It was at the northeast edge of this natural amphitheatre that the tornado first attained force sufficient to demolish fences. These fences were thrown down by a southwest wind for a space forty rods wide. The buildings of W. W. Morrow, situated half way up the bluff, were partly destroyed. But although its first destructive efforts were here manifested, it by no means follows that this was the starting point of the tornado. On the other side of South Skunk River, directly opposite, there was a strong wind, accompanied with some hail and rain, while to the north and west a tremendous rain fell, preceded and accompanied by large hail. The storm evidently arrived at Morrow's farm a well-nigh full-formed tornado. To trace it backward over a country where its phenomena were only those of a violent thunder-storm, I found to be difficult and deemed unnecessary.

The attempt to prove a connection between this tornado and the thunder-storm near Des Moines of May 22, 4 a. m., has not been successful. For although the Des Moines storm exhibited tornado-like power, since the distance between Des Moines and Morrow's farm is only seventy miles, and since the Des Moines storm occurred ten hours previously, its rate of motion, if it is identical with the Keokuk County tornado, cannot have exceeded seven miles per hour in a straight line. But, as will afterwards be shown, the tornado traveled more than twenty-nine miles per hour. This objection is by no means insuperable when viewed in the light cast upon the subject by the general modes of movement of storm-centers across the continent. These tornadoes, however, exist as something independent and automatic within the limits of areas of low barometer, and since their motion is governed by laws peculiar to themselves, it must meanwhile be accepted as valid. Besides, a hail-storm traversed Keokuk and Washington counties May 22, at 6 or 7 a. m. There is much more probability of a connection between this hail-storm and the Des Moines storm of 4 a. m. than between the latter and the tornado which occurred eight hours subsequently.

In the Neosho County Journal, of May 24, is an account of a highly destructive tornado which desolated a portion of Lincoln county six miles long by one-half mile wide. This tornado was apparently every whit as violent as that in Iowa. The time at which it occurred is given as about 3 p. m. It cannot, therefore, be identical with the subject of this paper.

The conclusion follows that, wherever this tornado may have originated, it first attained to desolating violence on Morrow's farm. Its previous history was only that of a thunder-storm, accompanied, perhaps, by an unusual tumult and whirling of the clouds. In tracing its development and progress, therefore, I probably labor under no disadvantages which do not necessarily attach to the history of all such meteors except those arising from the circumstance that the tornado was not at any point of its progress witnessed by a skillful meteorologist.

Mr. Morrow testified that neither he nor any of his people noticed any funnel-shaped appearance or tongue of cloud approaching the earth. There was a strong wind for a minute, but the destructive gust appeared to be instantaneous. A smart shower of hail followed the gust. A whirling of the clouds was observed several minutes before the wind. A little lightning was seen. The storm traveled east-northeast over Andrew

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Surber's farm, blowing down fences, with a southwest wind. He saw the cloud whirling like a great wheel 35° in width before the storm, but did not notice any funnel appearance. A few hail fell with the wind, and a considerable shower of rain after it.

The same phenomena were repeated on J. E. Storer's farm. A steady roar was heard as it approached. No lightning seen.

About forty rods north of the line of destruction on these farms resides William P. Liske. He saw two clouds, one in the southwest and the other in the northwest, which appeared to rush together in the west. As the tornado came up, and about twenty minutes before it arrived, the wind changed to the north and blew so strong that the door had to be held to prevent it from being blown in. Saw no lightning and heard but little thunder. Saw no funnel appearance.

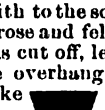
Elleot Utterback was sixty rods south of the tornado at this place. He saw the clouds come whirling. The height of the whirling clouds was about 60° and the width about 30°. Saw lightning and heard thunder once or twice. Hail followed the wind in small quantity, and rain fell in considerable amount three-quarters of an hour later. During the day the direction of the wind was southerly.

John Malcum, section 30, Lancaster Township, testified: Was one mile south of tornado when it occurred. Heard a roaring like steady thunder in the west about a quarter of an hour before the storm came. Saw no lightning. A cloud covered the west, the northern and the northeastern portion of the sky. It extended somewhat beyond the zenith. The rest of the sky was clear. Saw a whirling mass of clouds. Could distinctly see them whirl contrary to the hands of a watch. The whirling mass appeared to be about 60° high when directly opposite. A smart shower fell some time after the tornado.

On Malcum's farm, the roof of a stable was blown to the southeast. This was the first damage done by a northwest wind. Two hundred yards south of the stable a fence was blown toward the northwest and north. This was the first evidence of a destructive southeast and south wind. The storm after becoming destructive had traveled one and a half miles before it developed force sufficient to commit destruction by a northwest and southeast wind.

T. Dawson, section 31, Lancaster Township: The tornado passed directly over the farm buildings. He testified: Saw tornado approaching like two dark clouds with an intervening lighter-colored space between them. These two clouds together presented a funnel-shaped appearance; the upper end of the funnel entered the overhanging mass cloud, which covered the half of the sky and extended to the southeast a little beyond the zenith. Its lower end did not touch the earth. It whirled contrary to the hands of a watch. Its elevation appeared to be about 60°, and its width at summit 40°. Heard some thunder previous to tornado. Did not see any lightning. After the tornado there fell a few small hail and a little rain.

The breadth of fences thrown down on this farm was about sixty rods. The barns, houses, &c., were damaged. A cultivator weighing about two hundred pounds was carried or dragged 30 feet. It presented to the wind a surface of not more than 3 square feet. If it was carried, the lifting force of the wind must have been between sixty and seventy pounds per square foot. The ground showed no signs of its having been dragged.

M. Williams, lawyer, section 32, Lancaster Township, testified: Time, probably 2 p. m; it was a few minutes after 2 p. m. Watched the storm as it approached for about one hour. A cloud rose in the west, which, stretching to the northwest, presented the appearance of heavy rain. Previous to the approach of this cloud, the sky was nearly clear. The wind during the day was southerly. About twenty-five minutes after the tornado the wind was again from the southwest. The storm-cloud did not extend past the zenith to the south. Saw the funnel distinctly. It alternately lengthened and contracted, rose and fell. When it contracted, it appeared as if the narrow point over the earth was cut off, leaving the lower end broader. At times the upper end appeared to reach the overhanging clouds, and at times to be not so high. Its shape was something like  . It was of a dark-blue color when two hundred and fifty yards distant. When three hundred yards distant it subtended an angle of about The angle subtended by the top of it at that distance was about 55°. It had a zigzag motion. Half an hour previous to the tornado, there was incessant lightning in the northwest. Heard no thunder. There was no lightning in the tornado. A little rain and hail fell just before the tornado, and a smart rain-shower about twenty minutes after it. Have heard that to the northward there was a terrific storm of rain and hail accompanied with thunder and lightning. The wind was south generally during the day. As the tornado approached, the wind changed to a little east of south. Saw the dark funnel strike the ground on my farm. Saw it whirling contrary to the hands of a watch.

This witness was stationed about twenty-five yards south of the funnel when near to it. The fences were generally thrown toward the center on either side; but where the dark cloud touched they were carried away for a space sixty yards wide. Where

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re the first evidence of the dark cloud touching the earth in perfect funnel-form. But s touch is yet only temporary; like a child learning to walk, its footsteps are yet certain. It proceeds with a wavy, zigzag, circular-pendulum motion. By and by its ead will make the earth tremble.

The storm traversed Jones's farm, throwing down fences, until it struck the Wolfden hool-house, which lay near its center. The school was in session when the tornado ruck it.

Richard Weller, teacher, testified that this occurred at 2.15 p. m. precisely. This ne is valuable, and I have adopted it as one of the data for calculating the velocity the storm. The school-house was moved with the children and teacher in it to the st, the north end 30 feet, the south end 20 feet. It was not overturned. The win-ws, roof, &c., were much damaged, but there were no evidences of explosive ces. The weight of the building was given by Mr. Williams as probably thirty ousand pounds. The surface exposed was 360 square feet, besides the slanting roof. e slant of the roof was about 45°. The foundation was stone. It became very dark the tornado struck. After leaving the school-house, which is situated in a slight ine-like depression, the fury of the tornado abated somewhat. Hence, although it s nearly central over the hamlet of Hayesville, the frail houses were scarcely ched.

. U. Alford, who lives a quarter of a mile south of Hayesville, saw the tornado-cloud inging round in a circle like a flock of birds, and every now and again making a dip the ground and darting up again as high as the top of a tree. Its color was very k, inclining to green. The wind, which was south before the tornado, changed to th after it. A little hail fell as the tornado passed.

ohn Stephenson, Hayesville, a little south of the center, testified: Saw no lightning; rd no thunder; considerable rain about a half an hour after the wind.

. G. Konkricht, postmaster, Hayesville, testified: Tornado passed about 2 p. m.; rly perceived the clouds whirling contrary to the hands of a watch as the storm roached; saw lightning to northwest, and north of the tornado-cloud; heard no nder.

. W. Hayes, Hayesville, testified: Watched it for a half an hour previous to its val; saw two clouds, one in the southwest, and one in the northwest, which rushed ether and appeared to create a whirl; saw the clouds whirling.

. C. Dickey, who was at Hayesville, saw a cloud rush north, and then strike south h amazing rapidity; these were under-clouds; the whole northern heavens were ered with clouds; saw the funnel; it was of a dark green color and raised and ered itself at the bottom; saw no lightnings; heard no thunder.

. N. Bucher, one mile east of Hayesville, and about ten rods south of the tornado: r a funnel-shape, large at top, small at bottom, of a dark green color. It looked a kettle of soup boiling over. The funnel ended in a large cloud, which did not nd much south of the zenith. The bottom of the funnel kept bulging up and n. Wind was from the south previously. It changed to the northwest as it passed it grew cooler. At this place only a few fences were thrown down.

. H. Hawkins, Jordan farm, section 24, Lancaster Township, half a mile north of the m, and not far from widow Jacob's house, which was destroyed. Testimony: There eared at first to be two storms coming up—one from the west and the other from northwest. A little rain and hail fell before the tornado, and rain in considerable unt after it.

ne storm up to this point had been traveling east-northeast. Since leaving South ok River, it had been traversing a rolling prairie, with numerous sloughs, as they are ed, but nothing like a water-course. A little to the east of the last witness it struck ublesome Creek, the banks of which are well wooded. No sooner did it do so than creased greatly in power, changed its path temporarily to due east, and developed phenomena of two or more funnels or branches of a funnel. Down in the hollow, ng the trees, stood the house of widow Jacobs. It was completely demolished, but out signs of explosion. The storm-traces were already in great part obliterated, a new house rebuilt. The path of destruction was two hundred yards wide at point, and the general aspect of the fallen trees within this limit presented all the arances of a complete cyclone revolving contrary to the hands of a watch, ough nothing particularly worthy of notice presented itself. About a quarter of ile from the main track to the south, a swath about fifty yards wide was cut ugh the fences by a southwest wind. This swath appeared to curve toward the storm-path, but it was not possible to follow it until it reached it, because of the seness of the fences, and because there had everywhere on that side of the storm a strong southwest wind, and this swath was merely exceptionally strong.

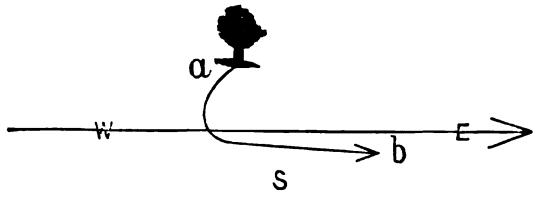
ne storm-center next traversed the Grout farm, now occupied by Samuel Brunt, passed about one hundred yards to the north of the village of Lancaster. Here perations became more interesting.

muel Brunt testified: Heard it roaring a long time before it arrived; as it ap-ched saw two funnels distinctly; their summits were lost in the overhanging

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mass of dark cloud. Saw funnel on the south side, which was the smaller, sweeping around in a half circle and join the larger one. The funnel had a pendulum motion. When it struck the ground it seemed to smoke, the smoke surging up like spray from a wave-beaten rock. The wind felt cold as it passed. Saw lightning during tornado. The breadth of the dark apex of the main tornado when it touched the ground appeared to be about 100 feet. There the wheat was mown as with a scythe.

The breadth of the path of the storm of sufficient power to throw down fences was here two hundred yards. The fences on the north side were blown south, those on the south side north, while along the center everything was carried east with the storm. An apple-tree, 7 inches in diameter, which had stood on the north side of the center was carried first fourteen yards south, with a little westing, then round in a regular curve twenty-four yards toward due east, and then due east for seventy yards. A beam 2 inches by 4 inches by 14 feet, and weighing twenty-five pounds, was driven into the ground 3 feet 9 inches at an angle of 35°, after having been carried thirty-two yards from the barn-roof. The following is a sketch of the path of the apple-tree as it stood at *a* and was carried to *b*:

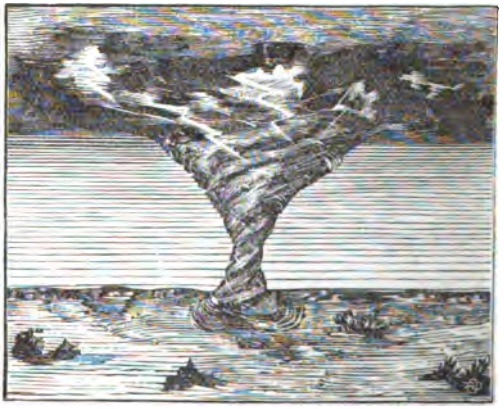


J. B. Jacobs, Lancaster Village, witness: Saw distinctly two whirls, the north one being the largest.

William Davis, Lancaster Village, witness: Watched for perhaps an hour previous to its arrival. Heard it for half an hour. Saw funnel when half a mile distant. The summit of it was lost in very dense clouds. It was funnel-shaped. The elevation of the summit was about 15°. It appeared to be about as high as the summit was broad. The top was twice or thrice as broad as the base. The clouds above it did not appear to whirl. Saw lightning during the tornado and heard thunder above the roar of the tornado. Previously the wind blew from the southeast strongly. After it passed it blew from the northwest. Saw boards whirling round in the funnel.

Mr. Beall, witness: Was on north side of storm, half a mile from its edge. It appeared like a funnel, and perfectly black. Saw rails whirling in it. The upper edge into which the funnel went did not whirl. It subtended an angle of 55°.

Fred. Tollman, Lancaster Village, testified: Was within the edge of the tornado. Was whirled like a top for fifty yards and lodged against a fence. Observed it for more than fifteen minutes before it came. Saw trees twisting in the grove half a mile distant. Saw the funnel whirling contrary to the sun. Its summit was lost in overhanging cloud. Thinks the upper cloud was also whirling. Saw only one funnel. Saw lightning flash up and down the funnel. Saw a tree thrown out from the top of the funnel about one foot in diameter. Top of funnel 60° high when seventy yards off. There were two funnels with the small ends together, thus, the upper one being the largest:



The above description applies to the lower one. It had before the tornado about as large as hen's eggs.

Austin Jacob, about half a mile north of the edge of the tornado. Testimony: Saw two funnels seperimposed, with the small ends together. The upper funnel was much the darker and larger.

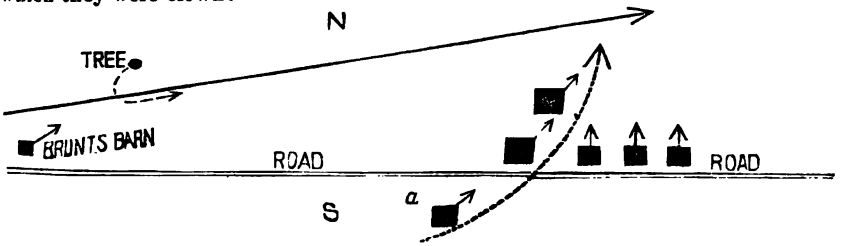
L. W. Low, Lancaster Village: Mr. Low's house was south of the principal portion of the village, and near the center of the tornado. Testimony: Was in the house when the tornado came. The southwest corner was lifted off the ground. The floor was then driven toward the roof, and the house went to pieces. Was severely injured. Was wet and covered with mud. Felt very cold. Felt warm soon afterward. Seemed to be surrounded with a heavy mist. Saw only one funnel. Saw lightning on both sides of it.

The last witness has weak eyesight.

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J. C. Jacobs, Lancaster Village: Witness was one hundred yards south of the edge. Shape was like a funnel, point up.

This completes the evidence for the village of Lancaster. It is somewhat discordant, or, rather, various. Some saw only one funnel; some two funnels, side by side; and others two funnels superimposed, with the small ends together. The discrepancies are, however, easily accounted for. As the cloud approached, it grew very dark. The tornado doubtless changed its form rapidly. The observers took a glimpse at it and ran to attend to their houses; or, as in the case of Follman, had to watch it under difficulties. Those who saw two funnels appear to have seen through the center of what appeared to those at a greater distance as only one funnel with the larger end down. The evidence afforded by the ruins in the path of the storm gives no support whatever to the belief that there were two distinct whirlwinds. The two dark clouds touching the ground worked together in the strictest harmony in producing such effects as would be produced by one tornado whirling contrary to the hands of a watch. But, as already instanced, streaks of wind of unusual power curved in half circles toward the center at certain places. One of those streaks passed in a northeasterly direction through the town of Lancaster, while the main whirl was one hundred yards to the north of it. This streak was at first only a few yards broad, but rapidly increased in width as it proceeded. It first unroofed a frail stable, without injuring the house beside it. It then increased in force, throwing down four or five houses, and unroofing as many more. The following shows the position of the houses and the directions in which they were blown:



The long arrow denotes the main track; the curved arrow the streak mentioned; the short arrows show the direction of the destructive wind which threw down the various buildings. Between the building *a* and the main storm-path there is a space of fifty yards comparatively uninjured. The sketch does not pretend to be strictly accurate as to distances, but to give the relative positions of the houses.

Leaving Lancaster, the whirlwind traveled down the declivity toward North Skunk River in a direction somewhat east of northeast. It leveled the fences in its path, in the way already described, and never varied from its commencement to its end. The house of widow Dogget, situated about a quarter of a mile south of the river, stands a little to the northwest of the storm-center, at the commencement of the level bottom-lands. Here two deep ravines, one from the south and one from the east, meet. In these ravines the storm developed enormous power, smashing up the timber terribly. The roofs of the house and barn were carried south and somewhat west. The trees on the north side of the center were thrown down toward the center, some pointing southwest and south, but the majority southeast. On the south side of the center they lay pointing northeast, north, and northwest. An oak-tree, 12 feet in circumference at the base, was broken across 12 feet from the ground. At the bottom of the narrow, steep ravine, running east and west, trees were lying just as they fell, some pointing east and some west.

Mrs. Wimar testified: That difficulty was experienced in preventing the wind from bursting in the door and windows; that it felt cool as the storm was passing; that a few hail as large as hens' eggs fell before the hurricane, and a great deal of rain afterward; and that the point of the lightning-rod upon the barn was partially melted by a flash of lightning.

One-quarter mile beyond Mrs. Dogget's house the tornado reached North Skunk River, which it then followed for over two miles in a southeasterly direction until it came to the southerly bend of the river, opposite Kohlhaus's saw-mill, when it suddenly turned to the northeast. The bottom-lands on both sides of the river are here covered with tall timber, and through this timber the storm tore its way with resistless fury. All trees within a breadth of about one hundred yards were either overturned or broken off and barked. The barking was evidently the result of three things:

1. Many of the trees barked had been bent, so as to loosen the fibers of the wood. Such bending would infallibly loosen and perhaps break the bark.

2. The air was thick with missiles, which not only broke the bark, but sometimes

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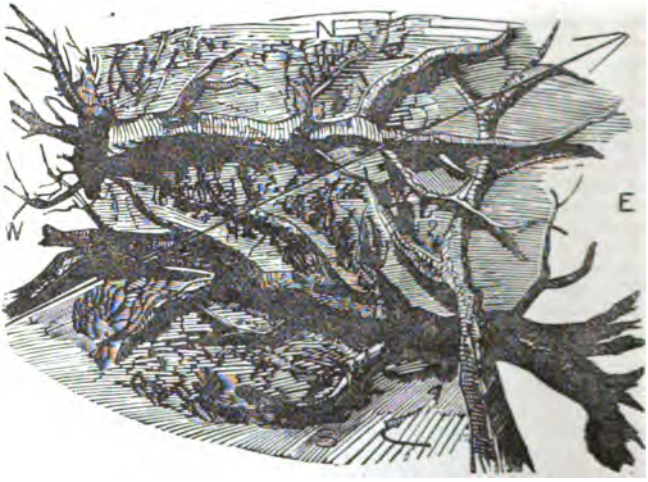
penetrated the wood. I have seen a corn-stump less than two inches in length stuck in the bark of a large tree which it had penetrated.

3. The peeling-off of such loosened and broken bark would be a light task for such tremendous blast. There was not the slightest evidence of electric action or of vapor explosion.

Broken trees had the bark torn off, both up and down, from the point of breakage. Trees half-broken and bent to the ground were similarly stripped.

At the place of rupture, the trees generally presented that broom appearance which the supporters of the theory that electricity is the principal agent in the production of tornadoes have seen conclusive evidence of its truth. It will afterward be shown, when this phenomena becomes more common than could be expected on the soft soil bordering North Skunk River, where trees were more easily uprooted than broken, that this broom appearance is due to the excessive bending and straining of the fibers of the wood, and their rupture, in succession, from the exterior inward.

The river, being impassable, rendered the examination of the general position of the fallen trees more difficult. Everything, however, corroborated the evidence already so abundantly adduced, that the tornado was a whirlwind of powerful centripetal tendency, circling contrary to the hands of a watch. The following arrangement of fallen trees was selected as being typical. It was found on the north side of the river, near the center of the tornado.



No. 1 is a tree 3 feet in diameter, but much decayed, blown down from the east-southeast. No. 2 is a tree one-half foot in diameter, blown down from south-southeast. No. 3 is a tree 2 feet in diameter, blown down from the west. No. 3 lies above No. 1 and No. 2 above No. 1. It occurred just where the storm left the river.

That the force of the storm was enormously increased immediately after reaching North Skunk River is proved by the greatly extended width of its path. At A. Doget's and B. C. Moore's houses, three-quarters of a mile distant from the storm-center, the out-buildings were damaged and the fences thrown down by a southerly wind. Mr. Dogget testified that the tornado appeared somewhat like two funnels with the smaller ends together, and that when apparently three and a half miles distant the column subtended an angle of about 25°. The houses of these gentlemen are situated on the summit of the bluffs facing the river, which are perhaps 200 feet high.

The house of Joseph Ash, situated on the face of the bluff, and distant from the river about half a mile, was blown to the south-southwest. Large trees were at this distance blown down in the ravines running to the river. Mr. Ash testified that the wind lasted a few minutes, and that it changed to the northwest after the passage of the tornado. A little hail fell before the storm, and a small shower of rain after it. Saw lightning and heard thunder. It grew cool as the storm passed.

Matthias Gengler's house stands on the summit of the bluff, one mile distant from the river. Due north of this farm was the saw-mill of Joseph Kohlhaus, where the tornado turned to the northeast. Mr. Gengler testified that it presented the appearance of a column rising from the river to the clouds. Its width at the top was not as great as at the bottom. It was perfectly round and perpendicular. It moved steadily along, without jumping up and down and from side to side. The angle of elevation

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was 55° when opposite. The wind blew very strongly. Mrs. Gengler said that the bottom was the blackest, and that the top looked like clear, solid water. She could see it spin around and upward like a screw, contrary to the hands of a watch.

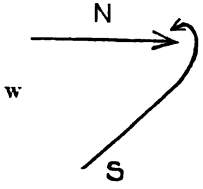
Matthias Hotel's house is a quarter of a mile east of Gengler's, and at the same distance from the river. He testified that it appeared to him like a big tower. Sometimes it was wider at the top than the bottom, and sometimes at the bottom than the top. All afternoon previous to the storm it was very dark in the north. As the tornado approached, the wind grew very high from the south, endangering the buildings. The height of the summit, when nearest, was 55° or 60°. Saw something like prairie-chickens whirling in the air; believe now they were sheep. Do not know whether any one has lost sheep.

The Black Hawk mills are situated about one and a half miles farther down the river than the point where the tornado left it.

Eli Walker, proprietor, testified that he heard a roaring for perhaps an hour previous to the arrival of the tornado. Saw it approaching apparently in a straight line for witness. It seemed to move slowly, and was perfectly steady, without any oscillating motion. Could not in the column itself recognize a whirling motion, but the light clouds around the summit of it were whirling. The top of the column had an elevation of about 30° when nearest. Saw it suddenly bend to the northeast at Kohlhaus's. Before the tornado approached the northern sky was black with clouds, which extended eastward. The south was generally clear. A hail stone or two fell as the tornado came up, and a light shower of rain afterward. Saw no lightning. Heard thunder previous to the tornado. While the whirlwind was on the river, the water ceased to flow over the dam, although the river at the time was high.

E. Stout was at Black Hawk mills. He testified: Saw it distinctly in funnel shape. Could see it as far as Lancaster from the summit of the mill-buildings. The top of it appeared, when one and a half mile distant, to be 15° in height. Saw two funnels come together and form one. The smaller one came from the south and joined the other. The top of the funnel looked like a solid body of water. Saw flashes of lightning from top of funnel, apparently northward. The small end of the funnel was up, but there was not much difference in size. The clouds above the funnel appeared to be whirling and approaching the center. The funnel which came from the south was of a lighter color than the other. The wind changed as the tornado advanced, and blew strongly toward it. The clouds above the narrow top of the funnel appeared to whirl in funnel form, with the wide end upward.

The following represents the apparent direction of motion of the two funnels as they approached each other:



Henry Lundy was at Black Hawk mills. He testified that he saw it whirling contrary to the hands of a watch. Thought he could see the top of it, and that it did not reach the clouds.

Matthias Bevens was one mile southwest of the storm. He testified that the column resembled very black coal-smoke, and went right from the ground to the clouds. It whirled with great rapidity contrary to the hands of a watch, rising at the same time like the spirals of a revolving screw. The top of it was about three times the size of the base. Little dark clouds appeared to fly out and around the dark column. When one mile distant, it subtended an angle of 30°. Saw no lightning; heard no thunder.

The house and steam saw-mill of Joseph Kohlhaus stood directly in the path of the meteor, at the distance of a quarter of a mile from the river, on the north side.

Mr. Kohlhaus testified as follows: The tornado appeared to stand still for several moments at the bend of the river, and then all at once bounded forward to the house. While standing still, it seemed to shoot or grasp out first on the one side and then on the other, as if discharges of artillery were taking place on these sides. The roaring was terrific. It resembled the sounds of machinery magnified a million times. It was a combined woo-oo-oo and whirr-r-r-r. Watched the column as it approached. It was funnel-shaped, but changed its appearance. It twisted around and up like a screw. Could not recognize bodies in the column; it was too black, and when the funnel came near it grew as dark as midnight. All the clouds were very low. They did not all revolve. Saw lightning before the storm.

The building stood upon the summit of a rising ground, about thirty feet high. Between it and the river is a half pool, half marsh. It was completely emptied of water. The breadth of the path of wholesale destruction was, upon the summit of the hill, two hundred and seventy yards. The house stood one hundred yards from the eastern and one hundred and seventy yards from the western extremity of this path. The timbers and contents of this house were carried in a half-circle first to the northwest, then to the west, then southwest, then south, and finally to the northeast, the heavier articles being generally sifted out first, thus marking the way the ruins went.

On the eastern edge of the path was an orchard, and on the western a wood. The trees in the orchard were blown down from the southeast and south; the trees in the

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wood from the north and northwest. Portions of the clothing from the house, shingles from the roof lay among the trees in the wood, or stuck among the branches. There were no signs of explosion, the doors and windows having been blown in. The inmates were all more or less injured. The width over which fences were blown down was here about three-quarters of a mile. An iron plow, weighing two hundred pounds, was carried forty yards. The sheet-iron chimney was carried two miles to the northeast. An iron sausage-machine, six inches by eight, and weighing fifteen pounds, was blown away. Part of it was found twelve hundred yards distant. The wheels of wagons were smashed, and the tires twisted.

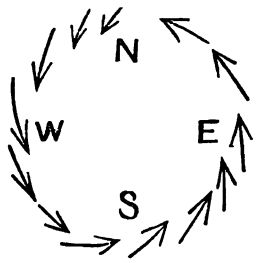
[The cut on page 1055 is a representation of the effects of the whirlwind at this place.]

After leaving the mill, the storm ascended a hill some 200 feet in height, leveling fences, but with evidently diminished violence.

Peter Randolph, about two hundred yards distant from its northern edge, distinctly saw it whirling contrary to the hands of a watch. Lightning struck a tree on his farm about half an hour before the tornado. This tree I saw myself. There was a light shower of rain after the tornado.

John Wehr said it looked like the cylinder of a threshing-machine, and spun around like a screw.

Passing over the top of the hill in a northeast direction, it struck Rock Creek, which here runs south, with a little easting. Immediately altering its course, it went straight up the creek for about half a mile, developing prodigious power. The large trees which lined the banks were torn and peeled and overthrown in promiscuous ruin. At a point where there is a small circular island, and a considerable amount of stagnant water around, the storm would appear to have stood still for a moment. The following sketch shows the position of the fallen trees at this point:



There were no trees on the island itself. There was no evidence whatsoever that the barking of the trees had been effected by electrical action or sudden evaporation. Everything tended to prove that the bark had been loosened and broken by the excessive bending of the trees and by flying missiles. One of the steers killed at the creek had an oak rail driven completely through its shoulders.

On reaching a slough which enters Rock Creek from the northeast the tornado followed it. Beside this slough and close to the creek was a small grove of young trees belonging to John Stein. This grove was completely carried away, nothing remaining, except a few barkless trees. At no point in its course did the storm develop greater energy than at this grove. Here generally young saplings, over which the center of the storm passed, were, although stripped of bark and twigs, left standing. Here the ground was whipped as bare as though the grove had been lashed with a whirlwind of fire. The tornado then passed between the houses of William Goeldern and John Stein, sweeping the fields, within the narrow path of its greatest violence, clean of grass, wheat, and corn-stumps, while the ground was torn and furrowed by flying rails and trees. The rails and broken timber had been gathered from the fields; but John Stein assured me that they lay thickest about the center of the storm. Along the sides of the path of greatest violence, many rails were driven deeply into the soil, end foremost.

While the main whirlwind thus pursued the path described, there were smaller shoots or arms which played havoc on its southeast side. Such an arm cut a swath about twelve yards wide through Schild's orchard from southwest to northeast, the swath widening as it went. It was not possible to trace it until it reached the main storm, for reasons similar to those already given. It seems probable, however, that it joined it at the little island above mentioned, where the storm appears to have momentarily stood still. The relative positions favor such a surmise. This strong southwest wind was a quarter of a mile distant from the center of the tornado.

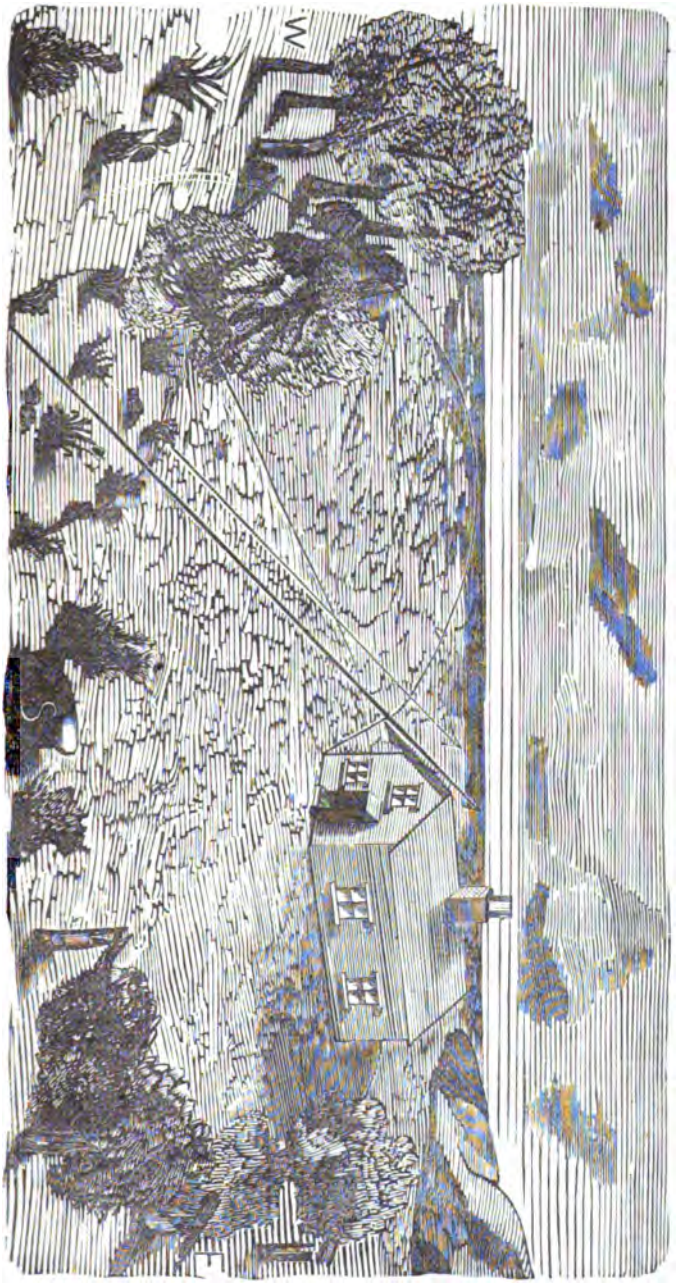
A similar streak leveled the fences close to the house of John Stein for a width of fifty yards, while nearer the main tornado the fences remained standing. This streak, I surmise, joined the main storm at the grove above mentioned. A similar arm struck down the new barn of F. A. Latz, about a quarter of a mile farther on, without touching weaker buildings close beside it. The path of this streak is said to have been quite distinct among the fences until it joined the whirlwind near the house of Peter Miller. The fences were, however, already restored.

George Starr, three-quarters of a mile southeast of the tornado, witness: About 5 it commenced to thunder and lightning in the northwest. The storm advanced from the northern sky, and it lightened terribly there previously to the arrival of the tornado. A big cloud extended from southwest to northeast. It cleared up immed-

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fter the tornado, both here and in the north. Lost eighteen head of cattle at Rock reek. One was perforated by a rail.

John Marsh's house stood a little to the northwest of the center of the storm. His



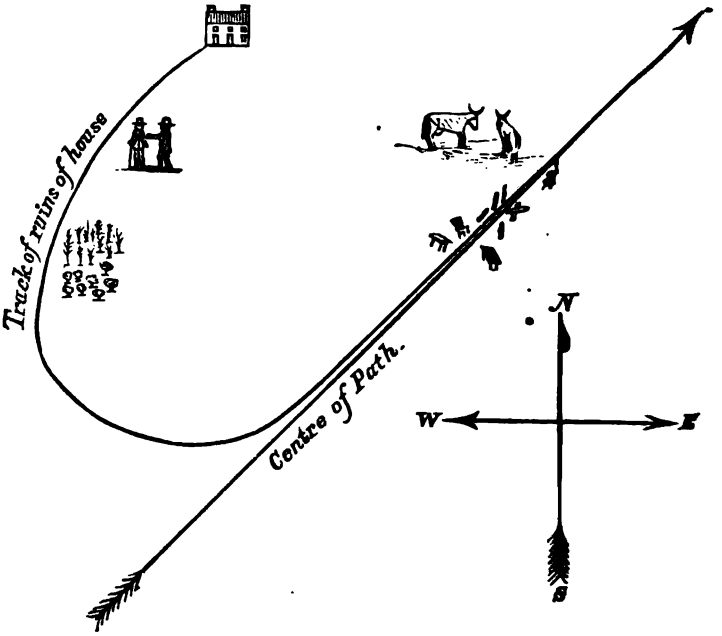
Effects of the whirlwind at the house of Joseph Kohlhaus.

mony: Watched it as it came directly toward me. It deflected a little from side de, with a zigzag motion. It turned and twisted like a screw in revolution. All family were in the house, the house having no cellar. It became as dark as mid-

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night. The windows and doors were blown in, in spite of our resistance, and we knew no more until we found ourselves lying in the slough severely wounded.

The destruction at this house was most complete. The house was carried forward from its foundations bodily; but as it was going down a declivity toward a slough, failed to strike the ground until it went to pieces. The heaviest timbers and the habitants were deposited in a slough, about one hundred yards south-southwest where the house stood. One child was killed instantly, and Mrs. Marsh has since died. The fragments of the house were carried, as was easy to trace, first to the southwest, then in a curve to the south, the southeast, the east, and then along the center of the storm to the northeast, the heavier articles sifting out as they went. I found ears of corn two hundred yards to the southwest and south of the house, and a fragment of heavy wood four hundred yards to south-southwest. Two cows and thirteen hogs were in a yard a little nearer the center of the storm than the house. They were carried one hundred yards to the southeast, and killed or fatally injured. A stone from the foundations of the house, weighing about one hundred pounds, was said to have been carried about one hundred yards south; but I could not find it. Sewing-machines, cultivators, wagons, &c., were wholly carried away, and left not a wreck behind. The timber was generally reduced to the dimensions of fine fire-wood, and thickly strewn along the path of the storm to the northeast. The width over which fences were thrown down was here about a half a mile.

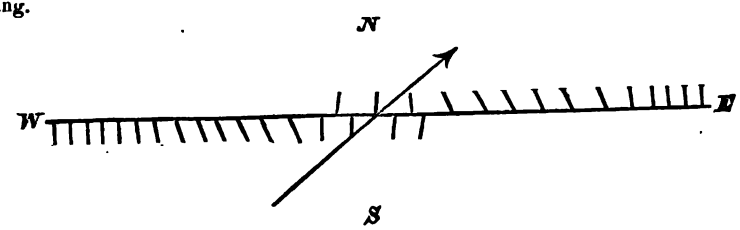


Sketch of the path of the ruins of Marsh's house.

A quarter of a mile to the north of Marsh's house stood the house, barn, &c., of W. Fuh. They were blown to the southwest, but without being carried away. The first house struck was that of M. E. Harris, the storm-center passing about twenty yards to the northwest of it. The fiercest of the storm was here only one hundred yards wide, but fences were blown down for over five hundred yards. The doors and windows of the house were driven in by the wind and the flying missiles, and immediately the house went to pieces. The house and out-houses were carried away, broken to small pieces, and deposited for a mile or two along the path of the storm. The trees around the house, which were not plucked out by the roots, had their tops and branches broken off and their bark stripped from them. The stripping of the bark was evidently due to the causes already assigned. The stripping was most complete on the southwest side of the trees. A fence four hundred yards in length, and running north and west, was deprived of its boards, the posts still remaining in the ground. When the storm-center crossed it, the direction toward which the posts were leaning

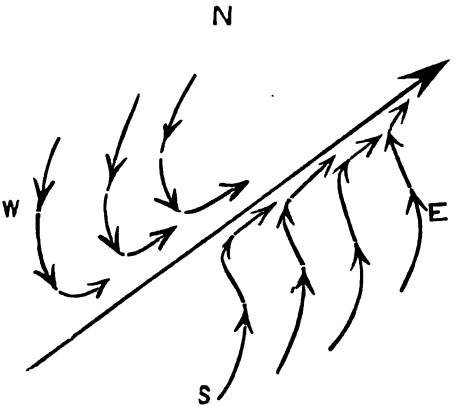
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indeterminate. On the west of the center the posts were leaning south, with a little easting, and on the east of the storm-center they were leaning north, with a little westing.



The above is something like the disposition of the posts along the line of the fence. The length of fence thrown down east of the center was about one-quarter greater than that thrown down on the west of it.

The corn-stalks in a contiguous corn-field were thus disposed: Those on the southeast side of the center curved around from pointing nearly due north to nearly due west. Those on the northwest side curved around from pointing nearly due south to nearly due east. Along the center all pointed with the storm. This shows the direction of the last wind, strong enough to alter the position of the stalks.



Corn-field.

Matthias Linen, a quarter of a mile northwest of the edge of the storm, testified that it presented the appearance of a great column, reaching from the ground to the clouds, and whirling contrary to the sun. It seemed to remain almost still at some places, and then would dart forward. Hail four inches in diameter fell as the storm passed. They were very irregular in form.

Paul Ritter, Clear Creek Township, section 9, testified that the tornado looked like a big tree, only it was five times greater at the top than the bottom. It turned like a wheel in a mill. Its direction of evolution was against the hands of a watch. At the distance of a mile, its top, when it entered the cloud, made an angle of about 60°. Hail as large as pigeon's eggs fell before the storm, and it rained very hard after it. Saw lightning in the west previously.

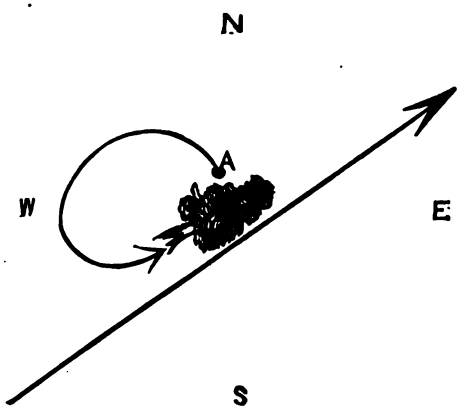
Mr. Ritter's house stands about seventy yards to the northwest of the storm-center. Its path is here about two hundred yards wide. The arrangement of stalks in a corn-field was the same as that already given. The roof of the house was carried south. A stump-cutter, which was standing by the house, was carried—the iron portion fifty yards south, the wooden portion half a mile to east-southeast. Wheels which came within the reach of the storm were dashed to pieces, and the tires twisted into all sorts of shapes. An oak tree, 3 inches in diameter, and which stood exactly in the storm-center, was split by a fragment of a board one inch thick. The board was originally probably 6 inches broad and 8 feet long. Of the two small fragments remaining in the tree, the longer was only 17 inches in length. The board was driven into the tree from the southwest. The path of extreme violence, about fifty yards wide, was strongly marked in the grove of young oaks. They looked as if they had first been lashed against a pile of stones and then trailed in the mud. Portions of bark were struck off and the smaller branches shattered and peeled. This grove stands upon the edge of a steep declivity about 100 feet in height, at the bottom of which flows Clear Creek. Here is a circular hollow nearly enclosed by high bluffs, and within it the storm raged with demoniac fury, smashing trees of 4 feet in diameter to pieces.

The following instance was found on the opposite declivity, up which the storm raved with undiminished power:

The tree stood at A originally. Its root was partly decayed, and it must have fallen with the first strong gust. The path which it traveled was cut out in the grass by its root. This path was forty-seven yards in length and was nearly circular. It first moved to the northwest and then round in a curve, until it lay pointing to the northeast, with its top almost touching the spot where its root had formerly been. The tree stood to the northwest of the storm-center, and was two feet in diameter.

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Crossing the summit of the rising ground, which was thoroughly plowed up, the storm traversed a wooded ravine, where for a width of fifty yards it deprived the young trees of their twigs and of much of their bark, besides throwing down the full-grown.



Nick. Engledinger, section 10, Clear Creek Township. His house stood about one hundred yards from the southeast edge of the tornado. From any indications which the remains presented, the timbers must have first been carried north. Two persons were killed—one of them being torn to pieces. A hog weighing four hundred pounds was carried one mile and a quarter in the line of the storm.

The house of Jacob Koerth stood fifty yards within the northwest edge of the storm. The timbers went south. The people tried to prevent the wind from blowing in the doors and windows, and could not. The wind entered and blew the house asunder, leaving the floor in its proper position. Hogs weighing three hundred pounds were carried to the northeast across a ravine and deposited three hundred yards away. A horse, a cow, and a bull were similarly carried two hundred yards. Sheep were carried four hundred yards. In addition to the accidents inseparable from such an aerial voyage, the bodies of the animals were driven full of pieces of wood. On this account, the bodies of all animals which perished in the storm were burned.

A horse-power machine, partly wood, but chiefly iron, and weighing two thousand four hundred pounds, was pushed or carried six yards. It was resting on the ground, and was separate from all other objects. There were no marks upon it arising from violent collision with other bodies. It exposed a surface of about two square feet to the wind. It lay close to the ground. The master of this house was absent, and information, owing to the invalid condition of the inmates, was hard to obtain.

The storm now turned somewhat more to the northward, traversed several fields demolishing the fences, until it struck the house of R. F. Campbell, Lafayette Township, on the borders of Clear Creek Township. The exact position of this and the two immediately preceding houses was difficult to determine upon the map, because of its very defective condition, and because their owners could not tell me what section they were in.



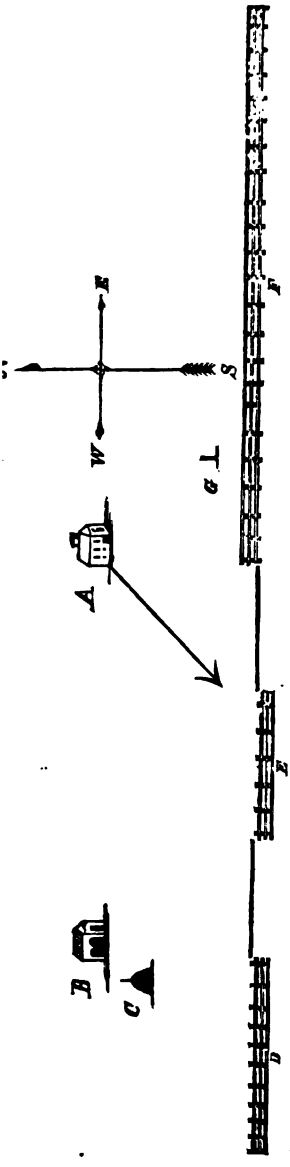
Mr. Campbell testified: That previous to the tornado he observed several currents above one another among the clouds. The wind was from the southeast. The lower current of clouds from the southwest, the next from the northwest, and the highest from the northeast. It commenced hailing about fifteen minutes before the storm. The hail was, in some instances, three inches in diameter, and fell in considerable

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quantity. It was calm when the hail fell. The hail was very cold. When two were put together they immediately froze. The north was full of black clouds previous to the tornado, in which the lightning flashed incessantly. Heard a dull, thundering noise in the northwest previous to the tornado as of falling hail. There appeared to be rain or hail falling on both sides of the vortex as it approached.

The preceding cut shows the appearance it presented at the distance of seventy yards. There appears to be two incipient funnels, one on each side:

A post 8 feet in length and 4 inches in diameter, and driven into the soil 3½ feet, was pulled out by the wind. It stood without attachment.



The width of the storm here is one hundred and sixty yards. The house stood within twenty yards of the northwest edge. It was tilted up on its corner bodily, inmates, floor and all, and deposited on its roof seventeen yards to the southwest of its former position, and then went to pieces. There was no indication of explosion. The accompanying is a plan of the effects of the storm at this house:

A is the house, which was carried in the direction of the arrow. B is a stable and C a haystack, both untouched. These were twenty yards from the house. D, E, and F are portions of a fence which were thrown down. D and E were thrown south, leaving the intervening portions untouched. F was thrown north. G is the post already mentioned.

This was the last destruction in Keokuk County. The tornado ceased to touch the earth on Mr. Campbell's farm. It drew itself up into the cloud from which it had come down. Hitherto it had traversed a country full of deep and well-wooded ravines. Here it entered upon a flat, bare country, in fact a watershed. It continues much the same for the seven miles which the tornado here skipped.

J. Yeats Brockway's farm, Lafayette Township, witness: Saw whirling in the clouds, after the tornado lifted, contrary to the hands of a watch. Watched it for ten minutes at least afterward, and it continued to whirl. The whirling portion of the clouds did not appear to be wide.

Mrs. Fobes, who resides about one mile northwest of the line of the tornado, witness: Saw the funnel. It seemed to stand still. Then it took a bend to the east. Then it grew so dark she could not see it. It grew lighter, and she could see it distinctly to the northeast of Campbell's house. It vanished suddenly, and she saw it whirling at a furious rate in the clouds contrary to the hands of a watch. Did not notice any more roaring after the tornado lifted.

H. Case: Resides about one and a half miles from the line of tornado had it continued. It rumbled a long time before the tornado. The sky was clear in the southeast. Saw no lightning. Hail of large size fell before the tornado approached. The center of the hail was shaped like a bird's egg, and pieces of transparent ice—like rock-candy—were stuck all around it. There was scarcely any rain afterward. The wind was blowing from the southwest at first and changed to the east as the storm came near.

Katie McLoud, school-teacher, witness: The school is a little to the northwest of the line of the tornado had it continued. It must have been about 3 p. m. when the tornado was here. Distinctly saw the funnel whirling contrary to the hands of a watch. Watched it until I could not see it for heavy rain. It had hailed about half an hour previously. The wind, while it rained, came from the northeast, blowing nearly straight toward the storm.

. H. Simpkins, Keota, witness: Thinks the sound continued after the tornado d, but not so loud.

oseph Charlton, Keota, witness: Saw the funnel distinctly reaching from the earth he clouds. The clouds were very low. Saw the tornado disappear. It had only

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to rise a little way when nothing, except the low cloud, was visible. The dense low clouds continued the same and the funnel only disappeared. The southern sky was clear.

J. R. Turner, Keota, witness: There was a very heavy rain, mixed with enormous hail. One hailstone was 7¾ inches in circumference, after lying some time.

T. D. Melville, Keota, witness: It commenced to hail about twenty minutes before the tornado disappeared. Further to the north it commenced sooner. The low cloud allowed only a small portion of the tornado to be seen. At three miles distance the funnel only subtended an angle of 15°. The rain came about twenty minutes after the hail. Weighed a hailstone of four and a half ounces, measuring 3 inches in diameter. It lightened a little.

T. N. Smock, Keota, witness: It hailed before the tornado disappeared. Saw some lightning in the direction of the tornado. The direction of the wind, while the hail was falling, was from the northeast; but it was light. There was not much wind with the rain afterward.

G W. Erwin, Keota, witness: Remembers that when the tornado lifted the sound ceased.

W. R. Charlton, Keota, witness: Did not not notice the noise after the tornado lifted. Heard it long and loudly before.

Robert Renfrew, Keota, witness: The town was all scattered with oak-leaves as the tornado passed. The wind previously was southwest. It changed to east as the tornado approached, and during the east wind the oak-leaves fell. After the oak-leaves fell, the sound suddenly diminished. Saw an elm fence-board 8 feet by 6 inches by 1 inch, and weighing from fifteen to twenty pounds, taken out of the ground. It was driven about 4 feet into the soil at an angle of about 45°.

Dr. D. McFarlane, Keota, witness: Was five miles on the southeast side of the line of the tornado had it continued. Heard in the west a roaring for perhaps twenty minutes previous to and after seeing a smoky appearance.

J. F. Wilson, postmaster, Keota, witness: About 3 p. m. was making up the mail. The storm was then coming up.

The storm having ceased to act as a tornado upon the surface of the earth, I proceeded to Westchester, Washington County, where it was reported to have struck. There can be no doubt, however, that a strong, though not a destructive wind, was felt over the intervening space, and that it obeyed the usual law of cyclones by blowing in spirals toward the point over which clouds continued to whirl like a great wheel.

G. W. James, station agent, Westchester, witness: Saw the main cloud whirling rapidly contrary to the hands of a watch. Saw an arm come down and strike the plowed field. Could hear roaring overhead. The roaring was louder before the storm arrived then when it was here. A few large hail fell and a little rain.

J. T. Robertson, Westchester, witness: The arm which came down carried up considerable quantities of mud and cornstalks. A few fences were blown down and a small wooden building damaged. There were only a few gusts. The revolving cloud was only a little way above the tops of the houses.

Mrs. Thomas Gavin, Westchester, witness: The wind blew down the blacksmith's shop in the rear of our house. The house itself was shaking. Hail fell as large as hens' eggs. It grew quite dark when the house was struck. Everything was blown toward the northeast.

S. W. Wilson Cedar Township, three-quarters of a mile northwest of Calvin Craven's farm: Heard roaring for more than an hour previous to the advent of the tornado Watched the cloud as it came along. Saw the tree-tops whirled by it. It appeared to be only 10 feet above the tree-tops. Hail as large as pigeons' eggs fell previous to the tornado, and a great quantity of rain after it.

T. B. Coffman, Cedar Township, section 33: (The tornado passed about a quarter of a mile southeast from witness.) Heard roaring like a heavy train of cars. Saw a whirling cloud in shape of a funnel. Hail not so large as hens' eggs fell immediately after the tornado passed. The top of the funnel was about 40° high when it was nearest.

Rev. J. P. Coffman, Cedar Township, section 33, witness: The tornado arrived about 3 p. m. Heard the noise for more than one hour previously. When it was hailing heard the sound just as distinct as before. Did not hear roaring after the storm passed. The wind before the storm was nearly due south. After the storm, and with the rain, the wind came from the north and northwest. Have learned that two or three miles to the north the rain was tremendous. There was lightning in the northwest previous to the tornado. As it approached, saw light, fog-like clouds, rushing, with the greatest rapidity, from the north. Its form was not so distinct before as after it passed, when it presented a decided funnel appearance. It was nearly clear in the south. When the funnel was distant about one mile it appeared to subtend an angle of about 25°. The funnel might have entered the dark, overhanging clouds, but it appeared to be wholly in view. There seemed at one time as if

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there had been a violent explosion in the revolving mass, as it was somewhat broken up. Hail larger than pigeons' eggs fell with the south wind before the storm.

The tornado passed over Mr. Coffman's house, blowing down fences about a quarter of a mile in width, and damaging buildings. It was all done by a southwest wind.

Calvin Craven, Cedar Township, section 33, witness: Previous to the storm the wind blew briskly toward it from the east. The cloud, as it approached, extended from southwest to northeast, covering the whole northern sky. Heard the roaring of the tornado, like several trains in motion, about thirty minutes previous. Saw white, foggy clouds darting through one another with frightful velocity as it came near. Above these whirling clouds was a dense black cloud. A few hail fell before the tornado, and a little rain after. Have heard that a most tremendous rain fell about one mile and a half to the north. It was extremely warm before the storm.

J. C. Brown, Jackson Township, witness: Was on the northeast of Calvin Craven's. Noticed the tornado first as it was tearing his fences, &c. At this time there was one whirl which reached the earth. It was not a jet black, but the color of coal-smoke. There was a big cloud directly over, but, although in commotion, it did not whirl. Went into a ditch to escape the hurricane. I then saw other two funnels, one on the south side and the other on the north side of the main one. All three moved forward toward me; but the outside ones also moved toward the central one. In a short time they joined the central one, which then appeared to stand still, and whirl around and around for a moment. The side ones did not whirl. They were bent forward at their lower ends where they touched the ground. The middle one did not whirl. It moved due east, and then northeast, and then due east again. The tops of all these were several times wider than the lower portions. Saw no lightning. A little hail fell before and a little rain after. The wind blew from the southeast before and from the north-northwest after the tornado.

William Scranton, Cedar Township, section 27: Scranton's house stands on the northeast edge of the storm. The roof of the barn was carried 150 feet due east. A tree in the orchard was blown toward east-northeast. The center of the storm passed over the center of the farm. The fences on both sides of it were thrown down toward it. The width of the path here is half a mile. The storm appeared to Mr. Scranton like two clouds coming together, one from the southwest and the other from the northwest.

R. H. Craven, Cedar Township, section 27, witness: A little hail fell before the tornado, and a little rain after it. The wind was northwest when the rain was falling. It cleared up about half an hour after the rain. In two places on the road east of Scranton's house ten to fifteen rods of fence were blown down, leaving the intervening fence standing. The fences on this farm were blown as usual.

W. H. Burham, Cedar Township, witness: Was on the edge of Scranton's farm. Heard the storm a long time before it came. Saw it about twenty minutes. The wind before the storm came from the south quite strong. Then it grew calm. Then there came a very hard wind right from the north. An intensely black cloud, apparently about 4 feet wide at the bottom, and swelling out like a large haystack, passed three hundred yards to the south. The top of it, when it entered the clouds, appeared to be about 45° high. It moved up and down, now striking the ground, and now passing over it. When it struck the ground it tore up everything. Saw it whirling contrary to the sun. Hail as large as walnuts fell before the storm, and a hard rain-shower after it, and then it cleared up immediately. Heard there was a heavy rain two miles to the north, washing away culverts and bridges. It felt cool as the storm passed, but grew very warm afterward. Saw rails flying out from the summit. An average rail weighs about forty pounds.

Frank Brown, Cedar Township, section 26, witness: Distinctly saw the funnel revolving contrary to the hands of a watch. Its height at one and a half miles distance was about 15°. Its top was five times broader than the lower end. Saw it strike the ground after it passed. Dark clouds appeared to strike the ground and rebound like spray. Saw only one funnel. The cloud extended from southwest to northeast, covering the whole northern sky. Observed sheet-lightning in the tornado several times. It grew slightly cold as the storm passed. When the tornado had passed about one and a half miles it appeared to stand still, and a strong gale, with rain, blew directly from it, so that I thought the storm was coming back. Almost everything on the farm which was blown down was blown toward the northeast. The breadth of path is a quarter of a mile.

Mr. Brown's house stands on the southeast edge of the storm.

J. S. Philips, Cedar Township, section 26, witness: Was holding the window looking west to prevent it from being blown in, and noticed that it was 3.15 p. m. Hail fell, between a tea-cup and a hen's egg in size.

Mr. Philips's house is one-half of a mile southeast of the storm-center.

W. W. Cook, Cedar Township, section 25, witness: (House four hundred yards southeast of the edge of the storm-path.) About twenty minutes before the storm came up the wind blew briskly from the south. When the tornado was passing it blew a strong

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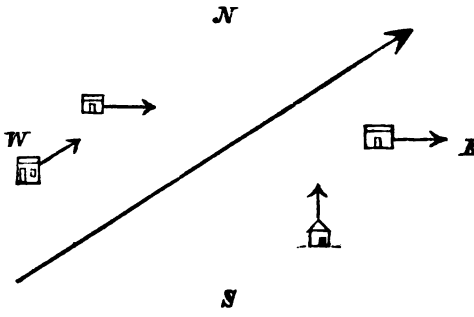
gale from the southwest. It rained after the tornado, and during the rain the wind blew from the west.

The son of this witness was two miles to the southeast during the storm. Hail as large as pigeons' eggs fell there and a little rain.

J. W. Plumber, Cedar Township, section 26: (House on southeast edge of the storm. When the tornado was several miles off saw a mass of clouds come from the northwest and another from the southwest, and rush together. The angle between the southern limit of the southwest clouds and the northern limit of the northwest clouds, when several miles distant, was about 45°. The angle of elevation was about 35°. Beside these underclouds, there were overhanging masses of cloud. Saw the funnel-form distinctly after the storm passed. It appeared to be twice as broad at the top as the bottom. It looked like a screw turning contrary to the hands of a watch. When three-quarters of a mile distant, it subtended an angle of 25°. Hail fell about half an hour before the storm, with a gentle east wind. When the storm had approached within half a mile, the wind came so strongly from the south as to blow a man off his feet. It rained a little some few minutes after it passed, with a west wind. About twenty minutes after the tornado, a light shower fell, accompanied with a northwest wind of about twenty-five miles per hour. Saw lightning in the northwest before the storm.

John Maughlin, Cedar Township, section 25: The storm-center passed right over Mr. Maughlin's house. He testified that he saw a complete funnel-form about two hundred yards distant, and that it went up into an overhanging mass of cloud. The funnel was perfectly opaque, and left a fog behind it so that nothing could be seen for several moments after it passed. At the distance of two hundred yards, it appeared to be only 15° in height. Saw no lightning.

The outhouses on this farm were badly damaged. The accompanying sketch shows the position of the ruins. The arrows point in the direction toward which the buildings were blown down. The fences were blown toward the storm-center. Those at the center were carried away.



Andrew McKee, Cedar Township, section 30, witness: The time was 3.10 p. m., precisely. The clock, which had just been cleaned and regulated, was thrown down and stopped at 3.10 p. m. Previous to the tornado, the lightning was warping incessantly like a snake among the dark-blue clouds in the northwest. Chunks of ice about one inch in diameter fell previous to the tornado, accompanied by a light east wind.

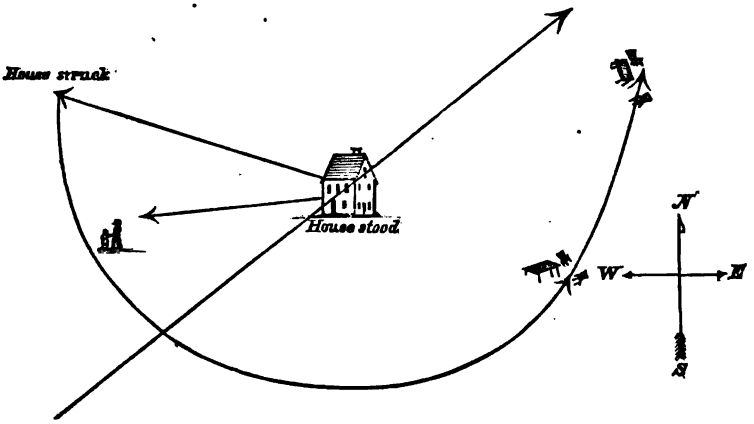
I, myself, saw the clock above mentioned. It still pointed to 3.10 p. m. Mr. McKee's house stands fifty yards within the northwest limit of the storm-path. The buildings were partly pushed, partly blown down toward the south-southeast. The fences were blown to the southeast. A little empty house about forty yards to the east was blown to the southeast, and some of it was carried clear across the path of the storm.

The hedges along the east and west road are here filled full of *débris*, such as corn-stumps, &c. On the southeast of the storm-center the *débris* is driven into the hedge from the south, and on the northwest side from the north, but there is a greater extent of hedge with *débris* driven into it from the south than from the north. The portion of the *débris* driven in from the north seems frequently to have been subsequently affected by a west wind. The hedges running north and south have *débris* driven into them on the north of the center from the east, and on the south of the center from the west, but the extent of hedge with *débris* driven into it from the west is greater than that with *debris* driven into it from the east. The hedges over which the storm passed looked as if they had been whipped violently against a wall, and then trailed in the mud. They were smashed and partially barked, and sometimes carried away. This description applies to the hedges over which the whirlwind passed at any part of its course.

George Gilchrist, Cedar Township, section 29, (house directly in the center of the storm-track,) witness: When the storm struck the house Mrs. Gilchrist, a boy, and a child were in front of the west door trying to reach the cave, the boy and child being a step or two in advance. The boy and child were instantly carried several rods to the west, while Mrs. Gilchrist was thrust back into the house. The house immediately went bodily, going a little to the north of the west, who saw it go past like the railroad, as he expressed it. Its sills struck the ground forty yards from their former position and the house tumbled over and went to pieces, leaving the inmates comparatively unhurt. As it went to pieces it was struck by a west and southwest wind, the furniture being carried far to the east and northeast. It grew dark as midnight when the tornado struck.

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William Caldwell, Cedar Township, section 29, witness: When the storm struck the house the inmates were in the kitchen, which was a separate building. The wind blew so hard as to threaten to blow in the south door. Four strong men placed them-



Sketch of effect of storm at Gilchrist's house.

selves against it. The hinges and lock were partly broken. These four men barely held the door with their utmost strength until the house went in a body. The men found themselves, together with the other inmates, a few yards to the north, lying among *débris*. The door was found a quarter of a mile away. It presented to the wind an area of 18 square feet.

Mr. Caldwell's house stood on the southeast edge of the most violent vortex. It was first pushed 6 feet to the northwest, plowing up the ground. The resistance of the ground and of tree-roots here stopped it. It then turned up on its edge, and was lifted over the tops of trees 20 feet high, without injuring them, and carried 100 feet to the northeast, falling entire, and going to pieces as it fell. The house stood with its end to the south. The area of this end was 280 square feet or thereabout. The area of the floor of the house was 480 square feet or thereabout. The weight of the house could not have been less than twenty tons. The trees over which the house was carried are young, and were probably so bent as to allow the house to rise at an angle of 45°.

A heifer, weighing seven hundred pounds, was carried away by the wind, and thrust head foremost into wet soil until her forequarters were buried.

R. M. Stevenson, Jackson Township, section 25, witness: The wind blew from the southeast as the storm came up, changing to north as it passed. The rain came with the north wind. Saw the funnel make two dips and touch the ground. The top of the tornado, when seven hundred yards distant, appeared at an angle of 35°.

The house of this witness stood a quarter of a mile southeast from the center of the storm. The outbuildings were somewhat damaged.

T. P. Harbaugh, Cedar Township, section 13, about one mile from edge of storm, testified: That he saw it go straight forward without stopping. Saw it rising and falling.

A. Booth, Cedar Township, half a mile northwest of storm: Saw it twenty or thirty rods northeast of Frank Brown's. Saw it whirling against the sun. The wind came from the east before the storm and from the northwest after it.

R. Finney was on the northwest side of the center, about one mile distant. He testified: When it was directly opposite, it appeared to reach up to the clouds. It subtended in width an angle of about 35°. In height it appeared to subtend an angle of about 40°. The bottom of the funnel was perfectly black. When it struck a house, could not see the house. Thinks it was lighter a little way up. Could see a roof carried up and fly to pieces. About fifteen minutes before the storm it hailed a little, and it rained for ten or fifteen minutes after. The wind, when the hail was falling, was from the northeast.

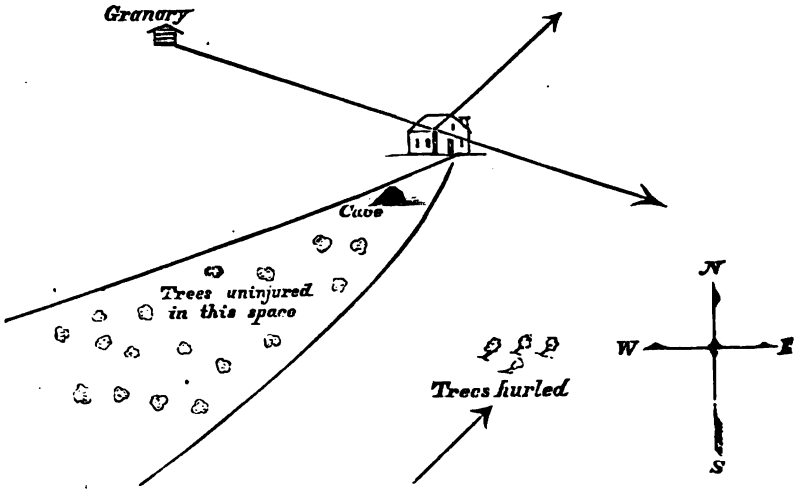
John Gordon, Cedar Township, section 25, one-half mile southeast of the center: It hailed about half an hour previous, with a southeast wind. The wind was from the west, as the tornado was opposite. No lightning was seen.

Laurie B. Mauck, teacher at Prairie Flower school, witness: Called in the children at 3 p. m. The tornado was opposite certainly not later than ten minutes afterwards.

Thomas Waters, Jackson Township, section 19, witness: Saw the tornado coming rolling on the ground like a wave. Went to the cave and called upon Mrs. Waters to follow. She would not. Stood in the mouth of the cave, which was eight yards south

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from the house, and facing it, and saw the house blown away. It was struck from the southwest. First, a portion of the roof was blown off, then the house went bodily like lightning. When the house had gone I came out of the cave and was blown to the east-southeast.



Sketch of Mr. Waters's house.

Mr. Waters's house was 30 by 16 by 11 feet without the roof. It was carried, sill and all, twenty-four yards down a declivity without being turned round or tilted over. When it struck the ground, it at first merely shaved it with the foremost sill, gradually going deeper until the resistance became so great as to cause the house to turn over, when it went to pieces. The ground was plowed up about two feet at the deepest point. The house had fallen three feet in traveling twenty-four yards. Its weight was at least ten tons.

Between the cave, which was only about four feet above the surface, and the house, but nearer the cave, stood a small tree. Against it a spade was leaning. Mr. Waters testified that it was not blown down. Two yards east of the tree stood a bucket containing a small quantity of lime, and weighing ten pounds. It was not disturbed. To the southwest of the cave the trees were comparatively uninjured over a triangular space, while on either side they exhibited signs of the greatest violence. An oak rail, which had evidently been carried with the house until it struck, and then hurled due east, was driven four feet into the soil at an angle of 45°. Its dimensions are 16 feet by 8 inches by 8 inches, and its estimated weight three hundred pounds. It was found eighteen yards east of where the house struck.

Mrs. Waters was carried with the house until it went to pieces, and received injuries of which she died. The fragments of the house were carried far in the line of the storm.

Alexander Gibson had two houses, both situated as nearly as possible in the center of the storm. The first house struck was taken away without touching the ground and went to pieces in the air. The other house, in which were seven persons, was swung round on its northwest corner, as on a pivot, the south end traveling 36 feet and cutting up the ground as it went. It then turned over and was demolished. During this journey the floor was broken up and three persons fell into the cellar. The house was a large one. It afforded no good basis for calculation on account of the irregularity of its shape. A granary was pushed due east 14 feet. Its dimensions are 16 by 16 by [illegible] feet. It is strongly built of generally hard wood, and divided into compartments. It was full of grain. The weight of the building and grain was given at 60,000 pounds. The resistance to its forward motion was very great, because it was surrounded with wet straw and rubbish, of which it had pushed quite a pile before it. It was racked by the strain which had been put upon it. Missiles had been driven through three hardwood planks, in succession, of an inch thick. They consisted of small pieces of wood, but had been removed. A plank 16 feet long, 2 inches thick and 1 foot wide, was driven 4 feet into the soil, at an angle of 45°. A corn-sheller, weighing six hundred and forty pounds, was carried four hundred yards and destroyed. Trees were barked

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but without any symptoms of electric action or of explosion. The general position of trees and ruins was entirely corroborative of what has been already proved by an overwhelming mass of evidence, viz, the rotation and direction of rotation of the storm.

J. K. Marbourg, Jackson Township, section 17, witness: (House eighty yards from storm-center, with an excellent view of Gibson's house.) Watched the storm a long time before it came. The west was first filled with clouds which extended until they covered all the western and northern heavens reaching a little beyond the zenith. The tornado first appeared as two clouds, one from the southwest and the other from the west rushing to one point. Together they presented somewhat the appearance of an arrow, thus—



The whirl was seen forming when they met. Above them were dark, heavy clouds When the tornado came nearer it presented the appearance of one funnel, revolving contrary to the hands of a watch, and drawing everything up, thus—



When at Gibson's house, where I had the best view of it, and where it was one hundred nd twenty rods distant, it presented the appearance of two funnels uniting in one, at e height of 40 or 50 feet. The bases of the two funnels were about 200 feet apart. ney presented somewhat like the following appearance. The two funnels did not pear to revolve around each other. The first came to the east of Gibson's house, took s stable, and then turned back to his house. The two then appeared to unite. Could



see the two afterward. The tornado disappeared behind a building. It grew y dark. The funnels were of a dark blue. Everything in them was rising. The

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timbers from Gibson's house flew up. Did not see clear sky through the open space between the two funnels, but a bright yellowish hue. The upper funnel extended to the clouds above. Hail, or rather chunks of ice, from a pigeon's to a hen's egg in size, fell before the tornado column came in sight. The wind then blew gently from the east. After the tornado had destroyed the school-house, there came a violent gust of wind from the northwest, which considerably damaged my out-buildings. I had started to go to the school-house, and it carried me several yards before it. Immediately there fell a torrent of rain, with cold wind from the north. Was near where the school had been, but could not see anything. Suddenly saw the teacher and children, as if they had sprung out of the earth. They were coming toward me. They were shivering. They could give no account of what had befallen them. Never saw such miserable-looking beings in my life. I had four children there, and did not recognize them. The mud was pelted into their skins, so that it could not be washed out. It is not all washed out yet. A dead child was found forty yards northwest of the school-house. The storm opposite my house was a mile wide. An oak-post 4 inches in diameter was perforated by an oak-board 4½ feet by 4 inches by 1 inch. (It had been thrown among the other rubbish and was not to be found.)

James Clancey, residing with J. K. Marbourg, testified that he viewed the tornado from the same position as Mr. Marbourg and saw only one funnel. I do not, however, estimate his observing powers so highly as those of his employer.

David Canier, Jackson Township, section 20, witness: Watched the funnel as it approached. It was perfectly dark in it. Could see boards flying out at the top of it. It was very large at the top and small at the bottom. It grew dark as night. Six persons took refuge in the cellar. The house went immediately like the clap of a hand, and the darkness was already gone. Then it turned pretty dark again, and rain fell in a sheet. It did not fall in drops. It was all over in a minute. Things in the cellar were not much disturbed. Bottles stood where they were.

Alexander Gibson, witness: Was at Mr. Canier's house. Hail as large as pigeons' eggs fell about twenty minutes before. Heard the noise about half an hour previous to the storm. Saw clouds coming from the north and south, and rushing together. Saw the funnel when three miles distant. Watched it when thirty or forty rods distant. It was then as black as night, with boards flying around it. A very strong wind was blowing. It grew dark as midnight. Rushed down into the cellar, and was barely down when the house was struck with a sharp, instantaneous rap, and in a moment it was gone. It was dark when I went down into the cellar. It was pretty clear as soon as the house went. It then grew darker again, and a tremendous rain came down. Saw no lightning. Heard no thunder. On my farm a beam was driven right through a hog.

Mr. Canier's house was 24 by 28, by 14 feet to the eaves. It was pushed 18 feet due north without touching the ground. Its edge then came in contact with the soil and with tree-roots, having fallen two feet from its original position, and the house toppled over, and was blown to fragments. The ruins were carried first to the northwest and then around to the northeast. Heavy oak-sills were carried hundreds of yards and broken. The strongest iron-bound machinery was knocked to pieces, and carried away. The sickle-bar of a Buckeye machine was carried thirty rods. A beam 14 feet by 6 by 6½ inches was driven 3 feet into the soil in a slanting position. The beam weighed about fifty pounds.

A half mile to the west of Mr. Canier's house stood the school-house already mentioned and a house occupied by Henry Waters. Between these buildings and Canier's house, and about one hundred yards to the northwest of the latter, passed the storm-center. The house occupied by Mr. Waters and the school-house were first blown to the northwest, and then in a circle by the south around to the northeast. A heifer ran along the road which connects the houses. It presented the appearances already described.

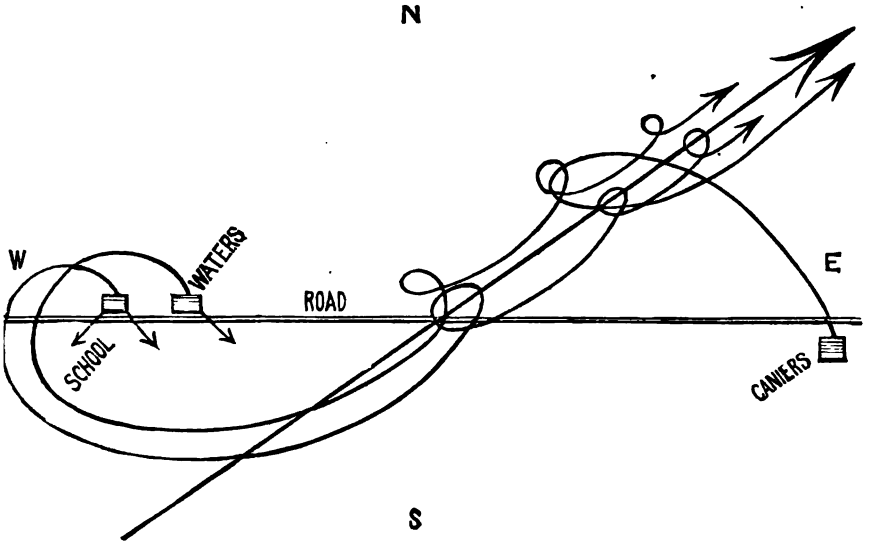
The house occupied by Mr. Waters was first blown to the northwest, the sills remaining. The sills were afterward blown to the southeast. The sills of the school-house had likewise, after being deserted by the house, been pushed to the southwest, and finally the position of the *débris* among the ruins showed there had followed a violent wind from the northwest; thus a tree lay across the foundation of the school from the northwest.

L. B. Babcock, son of J. P. Babcock, Jackson Township, section 17, witness: Hail fell before the storm as large as pigeons' eggs. Ran to get into the cellar. Cellar-door was blown over me as the house went. Came out of the cellar immediately, and was blown south. The rain then came down in sheets, with a north wind. The shutters from the house were carried three or four miles at least. Jacob Zeck got only partly down the cellar-stair and was hurt in the head.

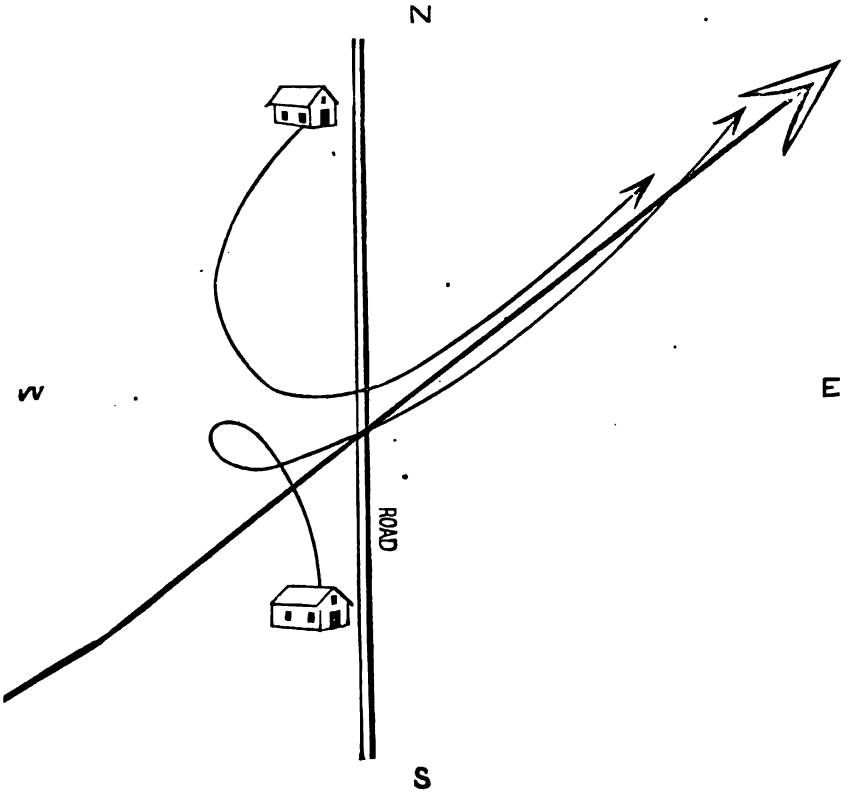
J. P. Babcock's house was 34 by 26 by 14 feet to the eaves. The gable-end faced the wind. The house was pushed bodily toward the north, crushing the northern foundation; tore up the ground a short distance, toppled over, and went to pieces. It stood on the southeast of the storm-center.

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Jacob Zeck, Jackson Township, section 17, witness: Was going down Babcock's cellar-stairs when his house flew away, and injured my head severely.



Representation of effects of the storm at these houses.



Sketch of the effects of the storm at Babcock's and Zeck's.

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Mr. Zeck's house stands on the northwest edge of the storm. It was pushed from its foundations 12 feet to the south-southwest, plowing up the ground. The windows on the north side were smashed in. The windows on the south and east were blown out. A hay-stack was entirely blown away. It went, as could easily be traced, first south-southwest, and then round in a circle to the northeast. It went forty rods south before turning east.

The distance between these two houses was about half a mile. At this point the storm-path turned a little nearer north than northeast.

J. H. Laughhead, Jackson Township, section 16, witness: A little hail fell before the storm. It rained awfully for half an hour after it. Wind, during the rain, was from the northwest. It was very dark. Saw no lightning.

The house of this witness stands on the northwest side of the storm-center, about one-third of a mile distant from it. The fences were blown the usual way.

Levi Moothart, Cedar Township, about two miles north of the path of storm, witness: There fell the heaviest rain I ever saw; also hail as large as hens' eggs. The rain lasted about an hour, and the whole country was under water. The wind, during the rain-storm, changed from south to west and north, and at times it was very strong.

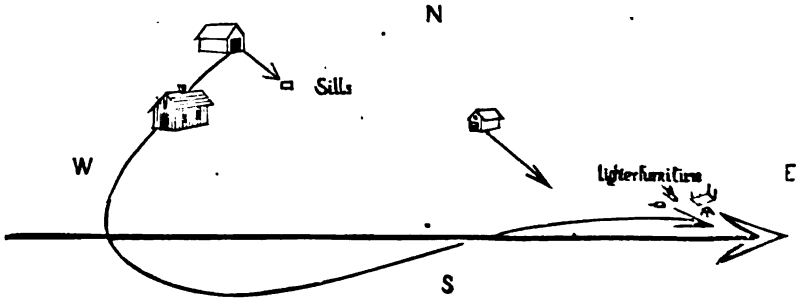
F. M. Curry, Jackson Township, section 9, tenant of John Flack's house, witness: The family went to the cellar. The house went south. No one injured. Eighteen panes blown away.

The house was pushed 45 feet due south and then went to pieces. No explosion. It was situated to the northwest of the center.

E. N. Wright, Jackson Township, section 10, witness: Was on the southeast side of the storm. Saw distinctly, at the distance of two miles, the tornado in funnel-shape. The small end was down. Saw wood whirling. Heard its roaring after it went east. There appeared to be a mist or steam in front of it. It rose and fell. A few hailstones fell before the tornado and an exceedingly violent rain after it.

Mr. Wright's house stands on the northwest of the center of the storm-path, about fifty yards from it. A wood-house and kitchen were blown southwest. The dwelling-house, a large, strong structure, was moved one inch to the east. A stove weighing four hundred and fifty pounds, and exposing to the wind a surface of 3 feet by 21 inches, was pushed 12 feet to the southwest, where it was stopped by obstructions. A bell, weighing one hundred and fifteen pounds, not under any circumstances exposing a greater surface than one square foot to the wind, and mounted 12 feet high, was broken from its fastenings and carried 60 feet south. A granary, measuring 28 by 16 by 12 feet, and weighing, together with the grain, fifty-five thousand pounds, was carried twenty-one yards to the southeast. After plowing up the ground 2 feet in depth it tumbled over and went to pieces. It was carried down a declivity, falling 6 feet. The width of the storm-track here was half a mile.

J. T. Anderson, tenant of J. C. Cunningham, witness: Was at Grand Prairie U. P. church, three-quarters of a mile northwest of storm-center. The wind blew so strong as to endanger the building.



Plan of ruins of Cunningham's house.

J. C. Cunningham, Jackson Township, section 11: The house of Mr. Cunningham stood on the northwest of the center of the storm-track, yet within the most violent vortex. The house was blown to the southwest; but the east door having been blown in, the house went to pieces without tumbling over, and the floor remained upon the ground. The lighter furniture, &c., was carried far to the east. The granary stood to the northeast of the house. Its contents were emptied into the house-cellar. The wheat the granary had remained when it was carried away. They were afterward found to the southeast. A barn was blown to the southeast. A hog, weighing two hundred pounds, was carried five hundred yards. A cow, weighing one thousand pounds, was carried two hundred yards.

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There were four persons in the house and none were killed. The path of the storm here five hundred yards wide and nearly due east.

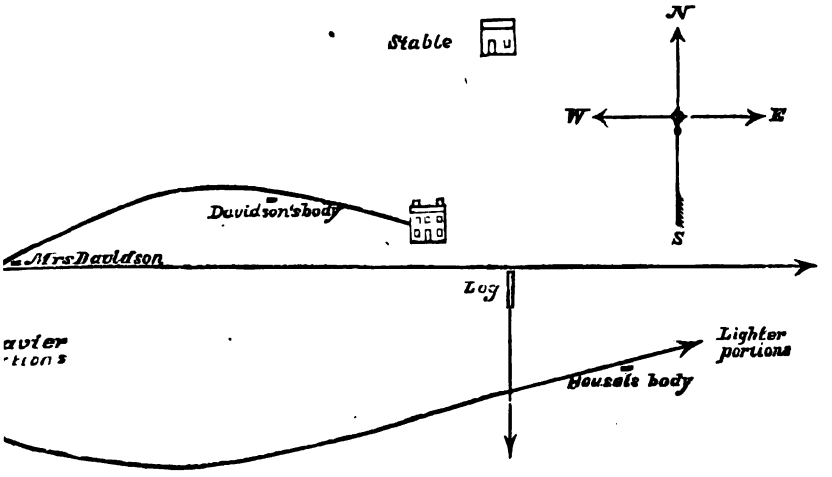
D. T. Carringer, Jackson Township, section 15: The house stood on the south edge the storm. It was carried to the northeast 17 feet, going deeper into the soil as it nt. It then turned over and was blown away in fragments. The straw among the es showed that the last gust came from the northwest.

Josiah Condit, Jackson Township, section 11, witness: No hail fell before the tor-do. It rained terribly right after it. The wind was blowing from northwest as the in fell. Saw no lightning.

Mr. Condit's house stands upon the southeast edge of the storm, which here traveled arly due northeast. There seems to have been a streak of exceptionally strong north-st wind, which struck the barn and corn-crib, and cut its way through the gar-n fences. The center passed along the fields, producing upon fences and hedges the ne effects as those already described.

The next house struck was that of J. M. Davidson, Highland Township, section 7: stood precisely in the storm-center, which here, as if conscious that this was its last tim in Iowa, seems to have exhausted its utmost violence. The house, 18 by 12 by feet, was blown bodily from its foundations down a declivity toward a slough. It er touched the ground, but was shattered in the air. It seems to have been carried t nearly due west, and then the lighter portions round in a curve to the east. The ly of Mr. Davidson was found twenty yards west of where the house stood. The ld was blown still further in the same direction. Mrs. Davidson was carried about hundred yards west. The body of Leyden Housel was found to the southeast. The vier portions of the house were found some hundreds of yards to the west. Mr. usel's body had evidently been carried west with the fragments of the house and n back to the east. Mrs. Davidson and the child escaped with their lives.

log of green water-elm, 7 feet in circumference, 8 feet in length, and weighing east a ton, was carried fifty yards straight south. A horse, weighing one thou-d and eighty pounds, was carried forty-five yards. A hog, weighing three hundred nds, was blown thirty yards. The stable and barn were blown south. An iron v, with wooden handles, was carried one hundred and fifty yards. The strongest -bound machinery was utterly destroyed. The young trees in the orchard were er barked or torn out. The storm was exceedingly violent for a breadth of one dred and fifty yards, but fences were blown down for nearly a mile wide. At the se of Thomas Davidson, a quarter of a mile to the north, the wind blew so strongly : the door had to be held. The north wind was evidently subsequent to the east d, because the house could not have stood such a wind.



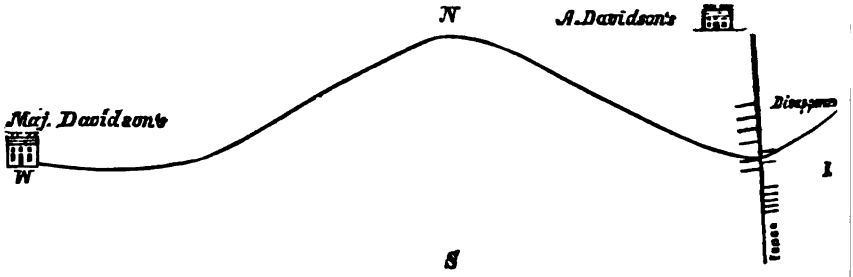
Plan of the ruins of J. M. Davidson's house.

Davidson, Highland Township, section 7, witness: It commenced to rain about ten enty minutes before the arrival of the tornado. Shingles and other stuff began to vith the rain. Then went out to see where they came from. Saw the tornado t thirty rods distant. It appeared to be coming toward me. Saw it bend to the east. It was funnel-shaped and as black as possible. It whirled. Thought it led with the hands of a watch. It passed twenty rods to the south of the house

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and bent again to the northeast. When thirty rods distant from the house it sud- disappeared. Afterward saw another funnel, not reaching to the ground, tra toward the northeast. When first seen it appeared to be only 60 feet above the gr at its lower end. The farther it went the higher it seemed to get.

Mr. A. Davidson's house is situated one-half a mile east of where J. M. David house stood, and a little north. The shingles and other material he saw falling from his brother's house. The following sketch shows the direction of the storm after leaving Major Davidson's place until it ceased to touch the earth as a fu



Twenty rods south of A. Davidson's house it crossed a fence, exhibiting the sam pearances as those already described. I was particularly careful upon this point, be of Mr. Davidson's belief that the funnel whirled with the sun. I thought it pr that the tornado, before lifting from off the ground, might have changed its direc rotation. But the evidence to the contrary was so striking that Mr. Davidson a upon my pointing it out to him, admitted that he must have been mistaken. He ha paid particular attention to the matter, and it was very dark when his observa were being made. The fence in question ran north and south. It was only thr down for a space of sixty yards, and the boards were not carried away except i middle. The posts remained in the ground, those on the north of the center lea west and those on the south leaning east. The posts in the center were leaning one way, some another. The funnel disappeared upon a knoll in the midst of a about one-half of a mile in diameter. There was no *débris* deposited at this poin were there any signs of a cataract of water having poured down. The wheat, ho ever, was mown as low as possible, and the ground looked as if it had been baked cording to Mr. Davidson's statement. The funnel had narrowed to a point bef disappeared.

After leaving Mr. Davidson's the tornado-cloud traveled to the southeast. Its pr ress was now difficult to trace, because of the little attention usually paid to a cloud, a high wind, and a rain-storm. Considerable time had also now elapsed the meteor passed.

James M. Mace, Highland Township, section 8, had several panels of fence b down by a westerly wind. A few small hail fell before the wind and a very he rain after it.

J. W. Haskett, Highland Township, section 9, witness: Six or eight panels of fenc my farm were blown to the southeast. A few hail and some rain fell. The wind from the northwest when raining. Saw some lightning. Heard roaring about half an hour before it came. Saw funnel strike the ground. Saw it rise at Davids Saw it strike the ground afterward. The wind blew very hard.

This witness's house is two miles from Davidson's.

William Dennis, Highland Township, section 10, witness: A few panels of fe blown down to the east. Small pieces of boards, shingles, and laths were dropped hailed a little before and rained a good deal after. The wind during the rain was the northwest.

John W. Guthrie, Highland Township, section 11, witness: A few panels of fe were thrown down to the east.

George Wallace, Highland Township, section 11, witness: Heard roaring. It grew very dark. A high wind about one-half mile to the south of witness.

J. H. Lyttle, Highland Township, section 12, witness: Had nearly half a mile fence thrown down. The east and west fences were blown south; the north and so fences east. Heard roaring an hour before the storm came. The roaring was mo before it came than after it was here. Did not hear it after it passed. Saw the c until it came within three miles' distance. The whole northern portion of the sky covered. Saw a cloud rushing from the south and another rushing to meet it fro north. The clouds rushing north appeared to be the lowest. After the cloud overhead could see the lowest clouds rushing rapidly from the south. The broken clouds. Through them could see a higher current rushing from the north

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ittle hail and rain fell. The wind changed from the south to the west and northwest s the storm passed. The width of fence blown down was about one hundred and fifty ards.

Michael McGuire, Highland Township, section 12: One-half mile of fence on the arm was blown down. The chimney was blown off and some trees leveled. All was lone by a northwest wind. It hailed a little and rained very heavily.

The storm now passed out of Washington County into Louisa County, traveling outheast.

Joshua Luckey, Louisa County, Union Township, section 17, witness: The path of ences blown down on my farm was about six hundred yards wide. The fences on the vest of the center were thrown north; those on the east were thrown south. A few ail fell and a smart shower of rain. Heard no roaring after it passed.

Charles Crim, Union Township, section 20, witness: Fences, two hundred yards ide, thrown down to the southeast. The roaring was very loud for an hour previous o its arrival. Did not hear it after it passed. Saw no lightning. Saw a tongue of oud shaped like a funnel hanging from the clouds. It did not reach the earth. At rst it was hanging perpendicular. Then it commenced whirling like the tail of a spended snake.

At this point I lost track of the tornado and could not recover it, although I spared either time nor pains. Only now and again could one find a man who could give ny information even of what happened on their neighbors' farms a week or two before.

John Colton, Columbus Junction, witness: There was some hail, a brisk wind, and tremendous rain.

Mrs. Snyder, Oakland Township, section 9: Heard roaring distinctly. There fell a ry heavy rain, which continued until nearly dark.

Peter Attig, Johnson County, Tremont Township, section 22, witness: About 4 p. m. ere was a terrific rain-storm, with hail as large as hickory-nuts, and accompanied th thunder and lightning. My barn was struck by lightning. Perkins's barn was so struck.

Lone Tree Station: About 4 p. m. there was a violent storm of rain, hail, thunder, d lightning.

Nichols Station: There was here a high wind, with heavy rain and hail, and accompanied with thunder and lightning.

At this point I gave up the search and took train for Illinois. Previous to describing effects there, the following testimony may find a place:

H. C. Vittitoe, Warren Township, Keokuk County, about three miles northwest of e tornado, witness: Saw a little south of the zenith the white under-clouds rushing circles to a center. The gyration was contrary to the hands of a watch. The funnel d not yet touched the earth. The wind came from the northwest pretty strong after passage of the tornado, bringing with it a little rain and hail.

Dr. W. D. Hoffman, Sigourney, witness: Mrs. A. T. Page collected a number of the gest hailstones. When melted it was found that they had contained a quantity of igs, leaves, dry grass, and mud, all reduced to fine proportions. Hail weighing from r to eight ounces were common. One hailstone which was shaped like an apple, measd 4½ inches in diameter. The roaring was heard about twenty minutes before the l began. It rose and fell like the cannonading in a battle. During the hail the nd came from the northeast, but it was very light. Sigourney is four miles north the storm.

saac Farley, Foote Town, Iowa County, twelve miles north of Keota, witness: ere was very little rain and no hail, but the sound was loud and distinct.

. R. Eldridge, Washington, Iowa, witness: Watched the tornado from the roof of ouse. Did not see a funnel appearance. The roaring was very loud and the cloud y black. The cloud appeared to bend forward. The elevation of its summit was ut 35°. The distance five miles. Its summit was completely hidden by an overging cloud, which extended south a little beyond the zenith.

rthur Howell, who was at Yalton, Iowa Township, five miles north of the tornado, ified that hail larger than hens' eggs fell, and a terrific rain of an hour's duration, ompanied by incessant thunder and lightning.

xtracts from a communication received from R. L. Jay, Harper, Keokuk County, sician:

Was in the village of Baden, Keokuk County, German Township, three miles to northwest of the storm-path.

The tornado maintained an upright position. It moved rapidly at times, at others ning to remain quite still. It was apparently about a quarter of a mile in height, was funnel-shaped and very dark and angry-looking. It whirled with the hands watch. There was a continual whirling of the clouds above the funnel. This observed for some time after the storm had passed. Saw no lightning and heard hunder. It was impossible to hear thunder owing to the noise of the storm, which terrific. The direction of the wind was northeast until the storm had passed, en it changed to the northwest. Rain fell in torrents. Quite an amount of hail of all conceivable shapes. Three were picked up weighing one-half of a pound a. Half an hour after the storm the thermometer stood at 92°."

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G. W. Brockway, Talleyrand, witness: No rain nor hail fell here. A heavy ra[in] about one mile to the north. The edge of the cloud did not reach the zenith by a[bout] degrees.

Extract from the Sigourney News, May 28, 1873:

"While the cyclone was mowing its path a few miles south and east of Sigour[ney] tremendous hailstorm visited this locality. We saw one hailstone which w[eighed] eight and one-half ounces. The hailstorm was followed by a heavy rain, after [which] the sun came out bright and pleasant for the rest of the day."

Extract from the Washington County Press of May 28, 1873:

"The writer was in a street-car, half way from Moline to Rock Island, at 4.3[0] p. [m.] on Thursday, when it was struck dead ahead by the most terrific wind and rain-[storm] we ever experienced."

S. J. Mather, editor Wilton Chronicle, Iowa, witness: Between 4 p. m. and 6 p. m. a very dark cloud passed over, which poured down a very heavy rain.

Extract from the Chicago Tribune, May 25, 1873:

"At Muscatine the rain came down as if the flood-gates of heaven had been op[ened] followed by hail. Between there and Wilton Junction, at Monona, Fredonia, [and] other stations along the southwestern division of the Chicago, Rock Island and P[acific] Railroad, the country was flooded."

The tow-boat Victory lost her pilot-house and smoke-stack when near Buff[alo] the Mississippi. The tug Nonesuch lost her smoke-stack and pilot-house at M[uscatine]. She was driven ashore.

A. H. Swan, editor of the Monmouth Review, witness: There was an exceed[ingly] heavy rain, a little hail, and a great deal of lightning about 5 p. m. The atmos[phere] smelt as of brimstone previously. It was oppressively hot; perhaps 95°.

The temperature and pressure on May 22, 1873, at places near the tornado:

	Davenport.		Keokuk.		West U[nion]
	Bar.	Ther.	Bar.	Ther.	Bar.
7 a. m	29.73	64	29.64	69	29.[6]9
2 p. m	29.60	77	29.51	85	29.[4]
9 p. m	29.69	66	29.71	72	29.[5]

The condition of the barometer and thermometer at West Union was obtained [by] Frank McClintock, correspondent of the Smithsonian Institution, who also furnish[ed] following noteworthy fact: "Wind changed from the south to the west rap[idly] 3.45 p. m. It worked back to the south before 9 p. m." The relative humidity [was]:

	Davenport.	Keo[kuk]
7 a. m	94	[ ]
2 p. m	77	[ ]
9 p. m	94	[ ]

We do not, therefore, overrate the relative humidity when we estimate it at [80] cent. at 2 p. m. The average temperature at the earth's surface in the line [of] tornado at 2 p. m. was, from the above, probably 76°, but in the wooded hollows [it] greater.

Mr. Jay, however, of Harper, Keokuk County, states that the temperature [was] half an hour after the storm. The day was generally described as being very [hot].

Having arrived at Prairie City, Ill., I endeavored to find out the exact locality [at] the tornado first began to overthrow fences, damage buildings, &c. On the far[m] James Williams, Point Pleasant Township, Warren County, there was a strong [wind] but not sufficiently so to prostrate fences. About one mile to the east is the fa[rm] Israel Jared, Point Pleasant Township, section 24. Mr. Jared testified as [follows]: Saw streaks of cloud moving from the north and south toward each other before [any] thing touched the earth. Saw a cloud in the form and about the size of a ha[y]-[stack] strike the ground on my farm. A few minutes before, hail of moderate size [and] small quantity fell, followed, as the whirlwind was passing, by a smart shower of [rain]. The wind, which had been southeast, changed to the west after the tornado [passed]. It was pretty warm before, and cool after it. Heard roaring some five minutes [pre]vious to the arrival of the storm. Fences were blown down for two hundred yards [to] They were blown toward the east. Saw some lightning. There was a heavy cloud [in] the north as the storm approached.

Mr. Jared's house stands about two hundred yards north of the storm-path. [The] tornado was here traveling a little to the north of east.

John F. Tatman, Israel Jared's farm, testified that he saw the funnel strike the [farm] and that he heard the roaring for a long time previous.

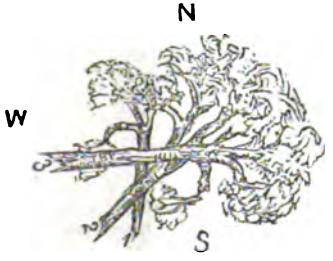
Before leaving this farm the storm had developed all the characteristics of a tor[nado] except that the east wind was not yet powerful enough to destroy. The whirl[wind] then passed along a ravine full of tall timber. Nearly all the trees were uproot[ed] broken, but generally the latter. They appear to have had a firmer hold of th[e]

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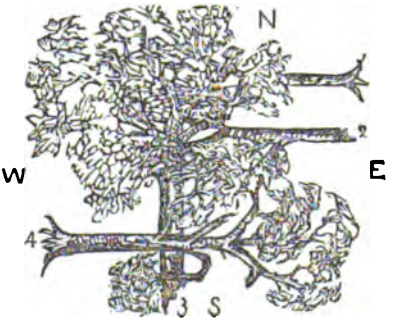
than those in Iowa. The breaking usually occurred about six feet from the ground and the barking was almost entirely confined to the broken trees. The bark was torn off both up and down from the place where the timber was broken. The trees, when sound, were seldom broken clean across. Half or more of the wood was severed, and the remainder was bent so as to allow the tree to rest upon the ground. The broken timber, when sound, invariably presented the appearance of a broom. The fibers of each year's growth were loosened from the others and split. It was easy to obtain pieces ten feet long and as thin as a wand. This separation of the fibers had evidently been brought about by the excessive straining and bending of the tree before it fell. Each year's growth had apparently been snapped asunder by itself, beginning at the outside. The trees all lay as they had fallen, being, when once down, protected by the surrounding timber. If they had, after falling, been subjected to a wind from another direction, so as to break them off entirely, they would have presented the precise appearances which have, by certain meteorologists, been attributed to the action of electricity. Many of these broken trees were two feet in diameter. When a tree, still standing, had its bark torn off at any point, an examination generally showed that the fibers of the tree were separated and perhaps partly severed at that point.

No. 1 lay beneath, diameter 8 inches; No. 2 lay above No. 1, diameter 26 inches; No. 3 lay above No. 2, diameter 26 inches. As the tornado increased in power the position of the overthrown trees varied more and more from a westerly direction; some weak ones lying from the south-southeast south of the center.

The following is a sketch of trees found in the center, one-quarter of a mile farther east than the above:



Sketch of fallen trees.



Nos. 1 and 2 lay beneath, diameter 6 inches; No. 3 lay above Nos. 1 and 2, diameter 18 inches; No. 4 lay above No. 3, diameter 15 inches.

Mason G. Buck, village of Swan Creek, witness: Saw a distinct funnel-shaped form. It appeared to jump up and down 50 feet at a time. It hailed a little before the storm and rained a little after it. Heard a roaring about twenty-five minutes before it arrived. Saw no lightning. Saw only one funnel. Trees were blown down in my yard from the northwest. My house is a half mile south of the center.

Leroy Putnam, near Swan Creek Station, witness: It looked like a top and whirled contrary to the hands of a watch. Saw it rising and falling. My house is about half a mile south of the center. It blew very strongly here. The tornado at this point was traveling east-northeast.

William Huston, Swan Township:

Mr. Huston's house stands on the north edge of the storm-path. The roof of the barn was blown to the southeast. A corn-stump about two inches in length was driven through the bark of a large tree, leaving its impress upon the wood.

John Worden's unoccupied house, one-quarter of a mile east of Huston's, was completely demolished. It stood near the center. The orchard was uprooted. Trees which had stood one hundred and twenty yards southwest of the building lay with their branches upon the foundations. The larger timbers of the house lay a few yards to the west and north. The lighter were blown away. The breadth of desolation was here one hundred and fifty yards. At this place the tornado seems to have made one of its sudden dips, the trees on the west and south being uninjured.

Shortly after leaving Worden's house the tornado entered the timber on the north bank of Swan Creek. It increased greatly in power and width as it did so. So long as it followed Swan Creek, fences were thrown down over a space of from one to one and a half miles wide.

Franklin Booth, Swan Township, section 18, witness: Hailed just before the storm as large as hazel-nuts, with a northeast wind. It did not rain much. Saw lightning toward the south. Mr. Booth's house stands on the north edge of the storm.

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Abraham Stanfield, Swan Township, section 18: The storm-center is one-quarter of a mile south-southeast of Mr. Stanfield's house. The fences were generally thrown south. Among Mr. Stanfield's timber, near the creek, the storm wrought complete ruin. Three typical groups of fallen trees may be selected. Group I, a little north of center: Nos. 1 and 2 were blown down from the east and lay below Nos. 3 and 4. They were between one and two feet in diameter. Group II, a little south of center, and seventy-five yards distant from Group I: No. 1, blown down from the southeast, lay over No. 2, blown down from the southwest. No. 1 was 15, and No. 2, 10 inches in diameter.



Group I.

Group III, a little further south of center than Group II, and near it: No. 1, a decayed tree 16 inches in diameter, lay under No. 2, 14 inches in diameter.

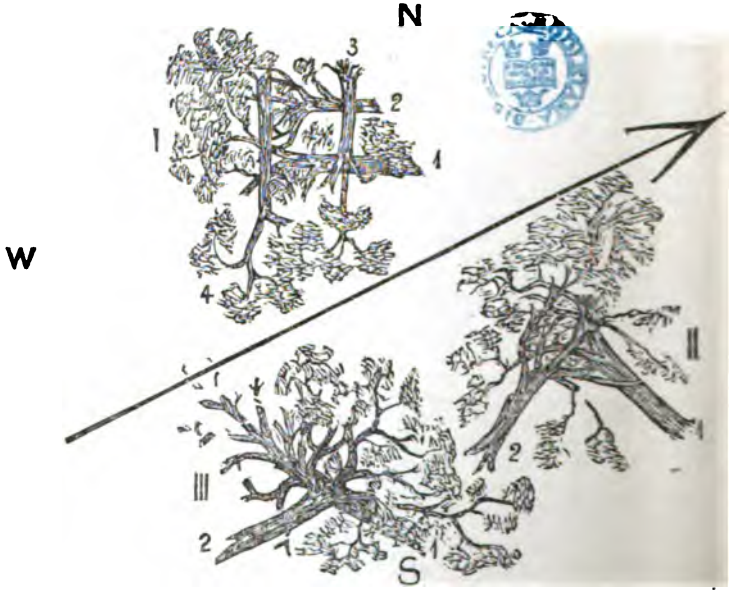


Group III.



Group II.

The storm at this point overthrew all trees of any dimensions for a width of two hundred and



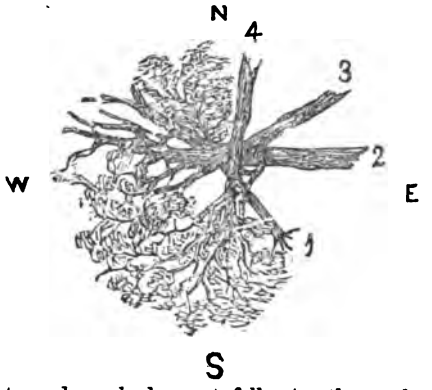
The three groups combined.

yards. The following group of trees was found about one-half a mile further on. It was just within the most violent vortex of fifty yards in width, and a little to the north of the center. The trees lay as they fell: No. 1, 12 inches in diameter, from the southeast; No. 2, 13 inches in diameter, from the east; No. 3, 14 inches in diameter, from the northeast; No. 4, 16 inches in diameter, from the north. No. 1 was lowest, No. 2 next, No. 3 next, and above all lay No. 4.

The path of the tornado was here exceedingly well marked among the timber trees. It could be followed by the eye as far as the ground permitted. The

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torn and bare, while all around was green. This barking of the young trees took place within much narrower limits than those within which grown timber was overthrown. Generally they did not extend over twenty to thirty yards in width, and were sometimes much less, and even disappeared altogether. The trees exhibited the marks of the greatest violence on the side from which the storm came. The twigs were smashed and broken off, the bark partially removed, and even the timber bruised. These results were evidently the effect of a rush of missiles against the trees.

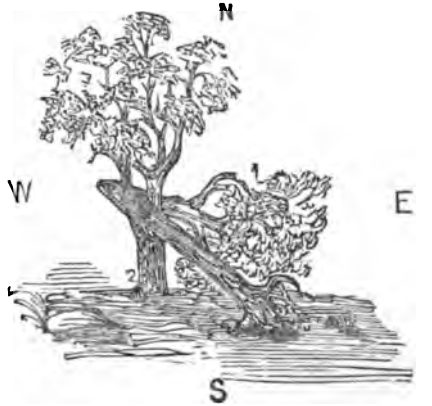


The tornado at one point suddenly narrowed the path of extreme violence from fifty yards to twelve yards, at the same time changing its course to the southeast. This change of direction brought it toward Swan Creek, along the northern bank of which it had hitherto been raging. Just as it struck the creek the track was nearly south-southeast. Immediately thereafter it turned nearly due east, following the creek. The bottom of the ravine within which Swan Creek flows is about two hundred yards wide, is surrounded by steep and lofty bluffs, and was covered with large trees. Among these trees the whirlwind raved with the utmost fury, developing an energy surpassed at no other point in its career. Trees from three to four feet in diameter were snapped or uprooted. Many large trees were broken off at a height of about 40 feet and left without a twig. By far the greater number of trees along the ravine were thrown down from the southwest. The same broom-like appearance was generally presented by the broken trees as already mentioned.

Thomas Warmoth's house stood in the bottom of the ravine. Mrs. Warmoth testified as follows: Heard a roaring first. When the storm came near the roaring was louder than thunder. A few hail fell just before the tornado blew. It was immediately preceded by a very bright flash of lightning. Went into the house and got upon my feather-bed, together with my child, because I was afraid of the lightning. A large tree was blown down catching the side of the house. The house went to pieces, the tree, however, keeping the floor in its place. Found myself under the feather-bed with my child. The bed was pinned to the earth by pieces of timber. Was soaking wet. Everything was covered with mud. Heard no thunder. The lightning struck the tree, depriving it of its bark.

I was unable to find this tree. Mrs. Warmoth's testimony is valuable as a curiosity. It was generally impossible to obtain any information from the ladies. If one questioned them rigorously they took it as an insult, and if allowed to tell their own story they immediately commenced running such a muck among the prodigious and the indelible that one was glad to make his escape. In this connection it is also worth mentioning that although invariably offering payment for any necessary hospitalities, I soon learned the wisdom of always addressing myself to the master of the house when asking for such.

No. 1 is a tree 18 inches in diameter. No. 2 is a tree 2 feet 6 inches in diameter, but broken at the height of 15 feet from the ground. No. 1 was blown from the south-east between the forks of No. 2 and then half broken close to the forks and blown from the northwest until its top nearly reached its root.



Group of trees near Warmoth's house.

After leaving Warmoth's house the tornado-center crossed to the south bank of Swan creek, where it continued for nearly a mile farther, although somewhat increasing its distance from the creek. It crossed to the south bank, where a smaller creek joins Swan Creek from the south. This brought it nearer to the house of A. J. Caton, Swan township, section 15, which stands about three hundred yards from the center of the whirlwind. Part of the roof was blown to the southeast and part to the northeast. A smaller house was blown a few yards to the southeast and inverted. A house on Mr. Caton's farm, tenanted by N. J. Reynolds, 14 by 20 feet and one story high, was carried

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eight yards to the northeast bodily. It then struck the ground, tumbled over, and was blown to fragments. Its four inmates were carried from fifty to sixty yards, but were killed. It stood a little south of the center. After passing Mr. Caton's farm the tornado entirely left Swan Creek. Before tracing its further progress, it will be best to give the evidence of people living at or near Youngstown, about one mile south of the center:

Charles McCormick, Swan Township, witness: The tornado looked as large as a house when three miles distant. A little rain and hail fell. The wind with the rain was from the west. There was no wind to do any damage. House a quarter of a mile south of Swan Creek. Time, about 5.45 p. m.

H. W. Simmons, Swan Township, section 28, witness: The time when the tornado passed was about 5.40 p. m. Have good grounds for this assertion. A few minutes before its arrival I noticed a very black cloud in the west with a lighter space on each side of it. My house is three-quarters of a mile from Swan Creek. Did not hear the roaring very distinctly until it was nearly opposite. Then it was an awful terrific roaring. Then it presented the appearance of a funnel apparently only a few rods across at the bottom. The top of it appeared to be from three to four times wider than the bottom. Did not notice whether it entered an overhanging mass of cloud. Was hailed a little when it was opposite. Fences were blown down fully a mile and a half to the south of Swan Creek.

H. A. Folger, M. D., Youngstown, one mile south of Swan Creek: The tornado was opposite about 5.45 p. m. Saw dark clouds in the west-northwest for an hour previous. There were several bright flashes of lightning after the tornado. A few hailstones as large as bullets fell as the tornado was passing. It rained very hard for a few minutes after. It was quite dark for a little time. Saw clouds rolling and tumbling. The strongest gust came from the west-northwest.

In Youngstown a few chimneys were blown off and similar damage done. One house was moved from its foundations to the northeast. Trees, in a few cases, were blown down, and all to the east. It is to be noted that, while at McCormick's house, a quarter of a mile south of Swan Creek, along which the tornado passed, no damage was done by the wind, at Youngstown, three-quarters of a mile further away, the gale was almost strong enough to blow down houses. McCormick's house is somewhat blown down and stands among trees.

After leaving Swan Creek the storm traveled east-southeast. The first house it came in its way was that of Absalom Vandevere, Swan Township, section 15. He testified as follows: I have reliable information that two or three miles to the northwest clouds were seen rushing south. The clouds came also from the south toward the tornado. Streaks of unusually strong wind seemed to come now and again from the south side and run into the main whirl. The wind on the north side was not nearly as strong as on the south side. Twice as much fence was blown down on the south as on the north side. Its noise resembled that of machinery, only very loud. The dimensions of my house were 36 by 42 by 18 feet.

Samuel Larkins, Swan Township, section 15, witness: Was at Mr. Vandevere's house when the tornado struck it. Heard roaring about fifteen minutes before it came. When I first saw the funnel it did not touch the ground. Saw it whirling contrary to the hands of a watch, and the clouds were drawn in toward it on all sides. It did not lighten before the storm. It lightened a great deal immediately after it passed west. It did not hail nor rain. Did not see clouds in north or south. There appeared to be only a narrow strip of clouds. A McCormick reaper, weighing probably a thousand pounds, was carried ten rods from the south. Two horses were blown, one fifty the other forty yards. An axle-tree, torn from a wagon, was carried a rod and a quarter to the southeast. A shingle was driven through a half-inch ash board. It is in the possession of a Mr. Thomas. A rafter, 8 feet by 2 by 4 inches, was driven through three hogs, and thrust into the ground a foot and a half. All three were dead when it was found. A picture-frame was picked up with the glass unbroken. The wind blew very strongly for about two minutes.

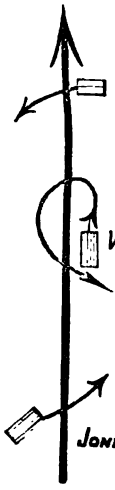
Mr. Vandevere's house, 36 by 42 by 18 feet to the eaves, stood north and south lengthwise. It was moved due north half the length of the house, tumbled over, and blown to pieces. It stood with its north end exactly in the center of the vortex. There were nine persons in the cellar and two in the house. One of those in the cellar was killed by a log. The trees around the house and within the narrow path of the greatest violence, all pointed to the east-southeast, the direction in which the storm was moving.

W. J. Jones, Swan Township, witness: Vandevere's house is forty rods to the east. Myself and wife were in my house when it was blown away. It grew dark as the night just then. There was a little hail before. Did not notice any rain. The storm did not go very fast.

Mr. Jones's house was 22 by 16 by 12 feet to the eaves. It was pushed entirely to the northeast. It then toppled over and was blown to pieces.

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The arrow in the sketch should point E.SE.



Sketch of storm-effects at Larkins's, Vandevere's, and Jones's houses.

The fragments in Illinois had already been gathered from the fields, rendering it more difficult to trace the ruins in their flight.

David Smalley, Swan Township, section 22, witness: There was quite a strong wind all day previous to the storm from the southeast. Saw some lightning before the storm. A little hail fell before it and a moderate shower of rain after it. The house stands on the south edge of the storm and was blown east-northeast one inch. It was very warm that day.

Edmund Jennings, Swan Township, section 22, a quarter of a mile south of the center, witness: While the storm was still in the west saw two funnels come together, the one from the north and the other from the south. They appeared to be both whirling, but contrary to each other. When they were still at a distance the sky was cloudy overhead. Their summits appeared to be lost in cloud. Saw lightning and heard thunder previous to the tornado. There fell a little hail before the storm and some rain after it. The trees, chimneys, and fences were thrown down to the northeast.

William Thomas, Swan Township, witness: The center of the storm passed a quarter of a mile to the north. An unoccupied house stood in its way. It was lifted from its foundations and then broken to pieces. Horses were carried a good way and killed. A rail was driven through one of the cattle, going in beneath her tail and coming out at her shoulder. Saw only one funnel.

Robert Wearmouth, Swan Township, witness: The storm-center passed three hundred yards to the north. It was traveling nearly southeast. Horses and cattle were blown a considerable distance. Saw two flashes of lightning before the tornado. Hail fell just before it, and as it was falling heard some thunder. It was so dark when the storm was on us that it was impossible to see anything flying.

Charles Thomas, Swan Township, two hundred yards north of the center and directly north of Wearmouth's, witness: The wind, which blew down trees, unroofed outhouses, &c., came from the northeast and north. Fences were thrown down nearly a mile wide.

Charles Perry, Swan Township, section 24, witness: House, 16 by 24 by 15, with gable-ends facing south and north, was carried to the southeast. There were four inmates, one of whom was mortally injured. Mrs. Perry, who weighed two hundred pounds, was carried one hundred yards and stripped of her clothing. Two horses were carried one hundred yards. Hogs had rails driven through them.

Mr. Perry's house stood near the center of the storm. The west side of the house was blown in and the house instantly broken up.

Caridan Johnson, Greenbush Township, witness: My house is three-quarters of a mile north of the storm-path. Saw no funnel-shaped appearance. Saw some lightning and heard thunder before the tornado came. A few small hail fell before the storm and a very hard rain after it.

B. A. Reid, Swan Township, section 24: Mr. Reid's house stood one hundred yards north of the storm-center. The north side of the house was not blown away, but blown down from the north. The wind had evidently driven in the windows and then burst the house asunder. Hogs, weighing two hundred pounds, were carried two hundred yards.

B. A. Reid, sr., Swan Township, section 25, witness: Saw two clouds, one in the northwest and one in the southwest, rushing together with great rapidity. A whirling commenced right where they met, assuming the form of a funnel. Saw it whirling with the hands of a watch at the distance of about two miles. These low clouds were overhung by a heavy mass of clouds. The funnel reached up to this mass. There was a little hail and a little rain. My house is less than half a mile south of the center.

J. P. Reid, witness, Swan Township, section 25: There was incessant lightning to the northwest before the storm. Heard thunder also. When the storm was one and half miles distant its angle of elevation was about 75°. Saw the funnel distinctly.

H. H. Hewitt, Greenbush Township, section 29, witness: Fences thrown down here over half a mile wide.

P. A. Vaughn, Greenbush Township, section 20, witness: Center of storm passed three hundred and fifty yards south of my house. The strongest gust of wind came on the northeast and north. Three trees, about ten inches in diameter, were carried one-quarter of a mile to the southeast.

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eight yards to the northeast bodily. It then struck the gr[illegible] about one hundr[illegible] blown to fragments. Its four inmates were carried fro[illegible]ued over without [illegible] killed. It stood a little south of the center. After p[illegible]hich were only carr[illegible] nado entirely left Swan Creek. Before tracing its f[illegible]em were killed. give the evidence of people living at or near Your[illegible]ookey's house stands [illegible] center:

Charles McCormick, Swan Township, witnes[illegible] was thrown to the nort[illegible] when three miles distant. A little rain a[illegible]ng, and that it was very [illegible] from the west. There was no wind to d[illegible]ness: My house is forty rods [illegible] south of Swan Creek. Time, about 5.45 [illegible] damaged by a southwest wi[illegible]

H. W. Simmons, Swan Township, se[illegible] farm, on the north side of the s[illegible] passed was about 5.40 p. m. Have [illegible]ant, and on the south side of the [illegible] before its arrival I noticed a very bl[illegible]e line of the storm. There was a[illegible] side of it. My house is three-quart[illegible]ore the storm came up, and lightning [illegible] roaring very distinctly until it w[illegible]., its roar was like that of a cataract. roaring. Then it presented th[illegible]ction 25, witness: Heard no roaring. Hous[illegible] across at the bottom. The top [illegible]o miles of fences blown down; one horse [illegible] the bottom. Did not notice [illegible]oy a rail. hailed a little when it was o[illegible]reenbush Township, section 16, directly nort[illegible] to the south of Swan Creek [illegible] fifty yards to the south of the storm: Wh[illegible]

H. A. Folger, M. D., Yor[illegible]ark, and the roaring was louder than thunder. [illegible] opposite about 5.45 p. m. [illegible]e hail fell and a little rain. The lamp was ligh[illegible]

There were several brig[illegible] Township, Fulton County, section 30, witness: The [illegible] large as bullets fell as [illegible] to the north of the house. Remained out of doors a[illegible] after. It was quite [illegible]appearance touching the ground a half mile distant. The[illegible] strongest gust came, I could not hear the breaking of the building-. There was

In Youngstown [illegible]rting like that of a thousand threshing-machines. Everyt[illegible] was moved from [illegible] thrown toward the center. Most of the wood was deposited [illegible] down, and all t[illegible] storm lay in the northwest a long time, and during that time [illegible] ter of a mile s[illegible] from the southeast. There seemed to be a dark cloud to the [illegible] done by the [illegible] in the northwest, and a clearer space between. The wind blew fro[illegible] almost stro[illegible] the storm passed.

down and [illegible] Union Township, Fulton County, section 30, eighty rods north o[illegible]

After l[illegible]itness: My house is forty rods north of the center of the storm. I[illegible] came in [illegible] the tornado arrived a heavy cloud had been lying in the northwest, tified r[illegible] playing in it. Clouds kept rising in the southwest and passing over [illegible] cloud [illegible]. From the clouds three points came down, from which rain appears [illegible] nado [illegible]. There was clear sky between these points. The ruins of my barn were [illegible] sou[illegible] first a little north, then forty rods west, and then distributed along the [illegible] st[illegible] for half a mile east. They could easily be traced, because the barn was p[illegible] t[illegible] At Joliet Creek, on this farm, the storm either widened or a branch came i[illegible] [illegible] creek. The storm struck us a little before 6 p. m.

J. B. Hatch, Union Township, section 29, twenty rods to the south of the [illegible] center, witness: The storm struck us a little before 6 p. m. As the cloud and dar[illegible] came over, everything appeared to be enveloped in a white mist. There w[illegible] drops, but it wet everything. The carpets in the house had to be taken up and [illegible] The paper on the walls was covered with mud and fine-ground leaves. The sto[illegible] wind came from the southwest. Everything was collected to the center of the [illegible] path. Did not feel any choking sensation when surrounded by the mist. D[illegible] feel cold. Boy felt chilly. It had been a very warm day. Saw lightning right [illegible] storm.

An unoccupied house ten rods south of the storm-center was parted. The kitchen [illegible] carried to the north; the main body to the south.

Cornelius Ackerman, Union Township, a half mile east of Hatch's house and [illegible] rods south of the storm-center, witness: Saw storm gathering in the northwest a[illegible] southwest for some time. Hail nearly the size of hens' eggs fell before the storm [illegible] south wind took the roof off the house. A northwest wind then still further [illegible] ished it. The wind took me off my feet. My hired hand, Cornelius Rice, was [illegible] down by the wind and then pushed along the ground for several rods. He [illegible] his elbow as he went. He first traveled north, and then in a curve round to the [illegible] when he stopped his further progress by clinging to the branches of a tree. [illegible] ground was rather dry before the tornado. It was quite wet after it. Seven [illegible] were transfixed with timbers. A shingle was driven into the sound butt of a [illegible] oak beam measuring 4 by 4 inches. The darkness was black. The direction [illegible] storm-path at this point was still east-southeast.

William McBride, Union Township, section 32, witness: Hail and heavy rain [illegible] fore the tornado. It then became black darkness. Three-quarters of a mile [illegible] from my house chimneys were blown down.

Mr. McBride's house stands apparently near the center of the storm, the[illegible]

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seems to have mitigated its fury somewhat. The barn-roof was blown to the north-northeast. The barn itself was moved four inches to the south.

R. Johnston, Union Township, section 33: The wind commenced to blow very hard from the south. Went into the cellar. Two small buildings were first blown to the north. The kitchen was blown southeast. The barn and other buildings went south. The main building was pushed a few feet to the southwest. It grew so dark that one could not see ten feet. Some hogs and pigs were carried away, I do not know where. Some of the former weighed two hundred and fifty pounds.

Mr. Johnston's house stood exactly in the center of the whirlwind.

Thomas Poole's house stood to the east of Johnston's. It was demolished. I could not see him.

Andrew Maholland, Union Township, witness: It was near 6 p. m. when the storm struck us. Felt the air to be very hot, like steam, before the storm. The wind at first came strong from the east and was accompanied by a driving wet. The roof of the house was blown to the southwest.

Mr. Maholland's house stands fifty rods to the north of the center.

R. S. Gorham, Union Township, section 33, forty rods south from Maholland's, and rather on the north edge of the center: The house was carried entire a few yards to the northwest, struck the ground, toppled over, and went to pieces. The kitchen was moved a few yards and broke up, leaving the family upon the floor. Trees were blown down from the northeast.

D. H. Gorham, Union Township, section 34, witness: The tornado arrived at my house at 5.55 p. m. Saw the storm gather in the west-northwest one and a half hours before it came. Saw a little lightning as it approached, but none after it arrived. Saw two clouds, one in the southwest and one in the northwest, with a red streak like sunset between them. Afterward saw only one cloud, rolling forward like a wheel. Heard a roaring a little before the storm arrived. It grew so dark that I could not read—a black darkness. First there came a blow from the southeast. After that there came a slight lull, and hail as large as hens' eggs fell straight. Then there came a harder blow from the northeast. Then for three minutes there fell a perfect torrent of rain. Rode out immediately, and the water on the road reached to the horse's belly. My outbuildings were damaged by the northeast wind. Fences were thrown down a mile wide.

Mr. Gorham's house stands fifty rods north of the center of the storm.

A. H. Miller, Union Township, section 35: The house of Mr. Miller stands on the north edge of the storm. There fell a tremendous rain as the storm passed.

At D. M. Kline's farm fences were thrown down a mile wide. They were thrown toward the center from both sides. The storm at this point had greatly diminished in violence.

O. Chatterton, Lee Township, section 1, witness: Heard the roaring only a few minutes before the storm came. The wind blew first from the southwest, then from the northeast, and then from the north. Saw no lightning. A tremendous rain fell about eighty rods south from the house. Thinks that this heavy rain did not extend far south. The Council Corner school-house was turned round.

John Schneider, Ellisville Township, had some fences blown down on the northwest bank of Spoon River.

H. Caril, village of Ellisville, witness: A very heavy rain fell during three-quarters of an hour. For six miles to the north everything was flooded. There was not much lightning. Heard a roaring, but not very loud.

Isaac Sechleider, Deerfield Township, section 7, across Spoon River: Mr. Sechleider's house stood near the summit of the bluffs which face the river. It measured 16 by 22 by 12. It was blown southeast three rods, and deposited on its roof. The five inmates were not much injured. The storm smashed the timber somewhat on the southeast bank.

About a mile farther on it became impossible to track the storm. Before proceeding to where it next struck, it may be advisable to insert some testimony from Prairie City and the neighborhood. Prairie City is about one and a half miles south from the storm-path.

The editor of the Prairie City Herald testified that he thinks the storm was opposite a little before 6 p. m.

C. H. Hemenover, Prairie City, testified that oak-leaves fell during the storm, and that the wind blew very strongly from the south. He keeps a thermometer, but did not look at it that day. Thinks temperature was not over 70°.

L. B. Day, Prairie City, witness: Saw a cloud in the northwest of a funnel-shape; heard a roaring sound for perhaps five minutes. The wind blew strongly from the southeast all of a sudden, accompanied with hail about the size of pigeon-eggs. There was an undercurrent of clouds from the southeast overhead. Just as this southeast wind blew it grew very dark. After the tornado passed the wind changed to the northwest, and a smart shower fell. Then it cleared up, and the sun shone.

J. M. Kershaw, hotel-keeper, Prairie City, witness: It grew dark about 6.05 p. m.

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saw clouds from southeast sent a-whirling as they struck the northwest clouds; saw continual lightning as the storm approached; heard roaring after the storm passed.

J. H. Day, Lee Township, about one mile south of the center of the storm, witness: There fell a very heavy rain, with north wind, so heavy as to flood everything in a minute. It filled a small creek so that I could not get home that night. I was one-half mile farther south than my house. The windows were smashed with hail on the north and east.

Wm. Henry, Lee Township, section 4, witness: Saw a heavy cloud in the northwest and a less heavy one in the southeast. There was a lighter space between, but could not see the sky there. The wind blew first from the east, and damaged the outhouses. Afterward there came a northwest wind, with a terrible rain.

Samuel Taylor, Lee Township, section 20, four miles south of storm: It rained a little from southeast, and then the wind came more from the south.

A. T. Irvine, station-agent, Prairie City: The telegraph was not disturbed by the electricity during the passage of the tornado. It only ceased to work between this and Avon after the wires were broken by the wind. The wind blew from the southeast as the storm approached. It rained quite a while from the southeast. Then it changed to the southwest, still raining, and when the rain somewhat ceased, it came from the northeast.

H. M. Torseman, Prairie City, witness: Between Ellisville and three miles north of it, there fell a most tremendous rain. Logs and rails were carried into the roads by the water.

Having learned that the tornado had made another descent at Utica, near the Illinois River, I proceeded thither.

Jacob McCan, Utica, Banner Township, Fulton County, witness: Storm came at 6.30 p. m.; saw lightning and heard thunder in the northwest, where a heavy cloud had long been gathering; saw two under-clouds, one in the southwest and the other in the northwest, moving toward each other. They were wind-clouds. Above them was a dark-green cloud. The two clouds were whitish, and were boiling up. The sky to the east was clear at this time, the storm coming up as an isolated, solid mass of cloud. The wind commenced to blow hard from the southwest. Then there came a brief lull; then a second blow from the northwest. With the northwest wind there came a cloud of smoke. It came in through the broken window. It came right in the fury of the gale. It was all dark in front of the window with it. This northwest wind was pretty cold. It hailed a little before the storm, and it rained very hard after it.

Nearly all the houses in Utica were more or less damaged, and several were blown down. The village stands on the bottom-lands of a small creek running into Illinois River. High bluffs rise all around. The tornado was here traveling southeast. It came down about one-half mile to the northwest of Utica. It continued to overthrow trees until it reached Illinois River, which is distant from Utica about one mile. It then turned abruptly to the northeast, traveling up the stream, which it then followed for about fifteen or more miles in a straight line, but much farther counting the bends in the river.

Charles Rice, Fulton County, Banner Township, one and a half miles from Illinois River, just at the commencement of the wooded swamp bordering the river, witness: The wind blew down two trees in my orchard. It was a north wind. The storm center was at least one-half mile nearer the river. There were a few hail at the commencement, and a heavy rain afterward.

M. B. Murray, Peoria County, Timber Township, section 31, and one mile distant from the river: The storm blew down a great deal of timber along the banks. Some trees were also blown down on the other side of my farm, on the summit of the bluff. A heavy rain immediately followed the wind.

A. King, Peoria County, Timber Township, section 31, witness: My house is one and a quarter miles from the river to the northwest. My fences were blown down.

A. Dempsey, village of Kingston, Peoria County: A few chimneys were blown down in the village, and similar damage done. Two cows were killed by lightning. Some timber on the river was blown down.

Kingston is situated on the bottom-lands of the Illinois River, and close to it.

Mapleton, Peoria County: Here there fell hail as large as hazel-nuts, and a very heavy rain, accompanied by thunder and lightning. It occurred after 6 p. m. William Harrison testified that he saw trees in considerable numbers which had been blown down in the storm of May 22.

Pekin: The ferryman testified that there was a big rain-storm with high wind. The smoke-stack of his boat was somewhat damaged by it. Mr. Tazewell stated that the high wind came first, then the hail and rain.

Fred. Netz, Washington, Illinois, witness: It blew very hard about 6.15 p. m. There was a heavy rain.

Thomas Handsacker, editor of the Washington Herald, Washington, Illinois: The storm came at 6.10 p. m., or very nearly. I watched the cloud. Did not see any funnel appearance nor any whirling. There was a very heavy rain, accompanied with hail.

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der and lightning. The wind blew down numbers of trees in different directions, but mostly from the southwest. Heard that at Eureka there was a considerable storm.

I accordingly went to Eureka, but found nothing of importance. Before closing the statement of facts, a few data may be adduced, showing the widely-extended area over which the storm, or portions of it, manifested itself:

Special dispatch to the Chicago Tribune.

OTTAWA, ILLINOIS, *May* 23.

The tornado which passed through Central Iowa seemed to have spent its force here last evening. An enormous quantity of rain fell in an incredibly short time, and the trains on both railroads were delayed for hours. Bridges were swept away and much damage done. Ottawa lay directly in the line in which the storm was traveling when I ceased to follow it.

Special telegram to the Chicago Times.

SPRINGFIELD, ILLINOIS, *May* 23.

A very heavy storm of wind, rain, and hail passed over this city last night.

Special telegram to the Chicago Times.

PEORIA, *May* 24.

The severe storm of Thursday night did much damage in Princeville, this county. A narrow strip of wind passed through Southern Village, almost literally demolishing the house of Oliver Moody.

The following is an extract from a letter by B. Whitaker, chairman of the meteorological committee, who resides two and three-quarter miles east of Warsaw, Illinois, in correspondence with the Chief Signal-Officer:

"On Sunday, May 22, about 3 p. m., or perhaps a little later, while planting potatoes in the field, a roaring noise was heard a little west of north. Being familiar with the noise of railroads, steamboats, &c., was at a loss to account for it. We stood and listened five minutes. The continued roaring noise indicated great force. A perceptible indication of its moving more to due north was manifest. After resuming our work the noise was heard for some time—ten or fifteen minutes or more. A dark cloud occupied the heavens in that direction, the point or foremost end moving to the northeast. The motion of the cloud was not easily indicated, on account of intervening and adjacent clouds. My place of observation is two and a half miles due south of the signal-station Keokuk, and two and three-quarter miles due east of Warsaw, and the distance to the path of the hurricane at least sixty miles."

Mr. Whitaker adduces a number of names of respectable parties in support of his remarkable statement as being co-witnesses.

Such is a statement of the facts connected with the Iowa and Illinois tornado of May 22, 1873, so far as I have been able to collect them. I spared no pains in order to render it scientifically complete, sometimes traveling miles under a fierce sun, and with a temperature among the nineties, in order to obtain the evidence of one man. The information given by any witness by no means represents the number of questions asked him. These were extensive and calculated to extract all the knowledge on the subject possessed by those under examination. For instance, the following question was addressed to all and sundry: Did you observe any pointed objects, such as lightning-rods, posts, &c., tipped with flame, during the progress of the tornado? But being uniformly answered in the negative, has not been formally inserted in the statement of facts. Also, a description of the sound was exacted from all witnesses, but only a few typical ones have been inserted. I regret this at present, because I have learned from experience that very important questions may attach themselves to a description of the sound. While interrogating parties the utmost vigilance was exercised to prevent them from giving conclusions for what they saw and heard. This was a very troublesome point, and caused the interrogator to appear in many cases in the highest degree rude; while it also excluded from these pages the names of persons who observed accurately, but who are unable to distinguish between the *esse* and the *ergo*.

No opportunity was allowed to pass of obtaining information. Whether at home, on the road, or in the field, all met were questioned. Of course by far the majority could give no information worth taking.

It will be noticed that the statement of facts for Iowa is much more exhaustive and instructive than that for Illinois. There are several reasons for this:

1. Some weeks had already elapsed since the tornado, and its traces were becoming rapidly obliterated, both in the memories of the witnesses and upon the surface of the earth.

2. It was later in the day when it occurred, thus hiding the light of the sun more

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completely by the tornado-clouds as they approached, and rendering it more difficult to observe accurately their forms and proportions.

3. The storm in Illinois seems to have been of a somewhat different character from that in Iowa, by its form rendering observation more difficult.

It may perhaps not be deemed irrelevant to mention that the best information was uniformly obtained from those who are not natives of the localities in which they live, but have settled there from other States or other countries. The reason of this may perhaps be that Iowa and Illinois are but recently settled, and that consequently the native-born population have not yet had time to arrive at years of discretion, whereas the original settlers are in the prime of manhood or verging toward old age.

With regard to the angles of elevation given, it must be borne in mind that they are only approximations. Very few indeed of the witnesses have accurate conception of angles. I generally made them point in the direction in which an object was seen, and so estimated the angle.

CALCULATIONS AND CONCLUSIONS.

The idea of a tornado in general.

The tornado consists essentially of a rapidly-ascending current of air. This involves two other functions: first, a rushing in of the air at the under part of the ascending current or column; secondly, an outrushing at the upper. Upon the former of these functions, combined with modifying circumstances, depends the peculiar character and career of the undercurrents and of the clouds they bear; upon the latter, combined with the same circumstances, the proportions and direction of motion of the upper currents and of the heavy masses of clouds they bear. There appears to be nothing in the nature of the tornado itself which can determine the motion of either the upper or under current more toward any one point of the compass than toward the others. The direction of motion relative to the ascending column depends upon the direction and velocity of motion of the latter, and of the atmospheric strata in which the influx and efflux take place, modified, to some extent, by the differing velocities of revolution of the surface of the earth at different parallels of latitude, by the form of the earth's surface, and by the variation in the constitution of the atmosphere. If the tornado column, and the atmospheric strata which it penetrates, move in the same direction and with the same velocity, the influx and efflux will take place in nearly equal quantities on all sides of the column. If they move with different velocities the direction, exaggeration and diminution of the influx and efflux can be calculated in the same way as the direction of a wind-vane on a ship's mast, giving the directions and velocities of the motion of the wind and of the ship.

General idea of the tornado of May 22, 1873, in Iowa.

A huge, dark cloud covered an area at least thirty miles in diameter. Under the southwest edge of this cloud there moved a perfectly opaque funnel-shaped appearance, reaching from the ground to the clouds. Toward its base, the wind, in spirals, rushed violently from all sides, overthrowing, when in immediate proximity to it, within the opaque vortex, whatever opposed its progress. Toward its summit, where it disappeared in overhanging horizontal cloud, long streaks of clouds rushed in spirals from all directions. Viewed from a distance they appeared to come from opposite directions, and move swiftly toward each other at right angles to the observer's line of vision. Between the surface-current and these centripetal clouds the air doubtless obeyed the same forces, and rushed in spirals with ever-increasing velocity toward the opaque funnel.

Under the remainder of the lofty cloud which defined the limits within which the outspreading of the ascending air was taking place, and which lay chiefly to the northeast of the rising column, there raged a tremendous storm of hail and rain accompanied by incessant and brilliant electrical phenomena.

More particular description.—Dimensions of the meteor, and of the centrifugal or upper current.

Mr. B. Whitaker, (p. 1081) when sixty miles distant, saw the summit of the dark cloud in the direction of Washington, Iowa. Of this fact there can be little doubt, the time agreeing precisely. In order that its summit might barely reach the level of the rational horizon the cloud would require to have an elevation of $\sqrt{(4000)^2 + (60)^2} = 4000$ mile nearly. Mr. Whitaker simply states that a dark cloud occupied the heavens in that direction. This supposes that it reached to a considerable distance above the horizon. If we suppose it only reached 15° above it an additional elevation of one

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sixteen miles, or a total height of between sixteen and seventeen miles, would be required.

Mr. Whitaker's evidence as to the immense height of the cloud receives corroboration from the evidence of a great many of the witnesses, who state that they saw the black cloud in the west for hours before the tornado came. Since the storm traveled thirty miles per hour, if the cloud was seen two hours in advance at an elevation of 15° above the rational horizon, and it would scarcely have attracted attention when lower, then it must have been sixteen miles in height.

The data for determining the horizontal extent of the cloud are not very precise. There is a general concurrence of the witnesses that it reached only a few miles to the south of the tornado, and that very little rain or hail fell there. G. W. Brockway (p. 1072) testified that at Talleyrand, about two and a half miles southeast from the track of the tornado, there fell neither hail nor rain, and that the cloud did not reach the zenith. Isaac Farley (p. 1071) testified that at Foote, Iowa County, fifteen miles north of Talleyrand, there was but little rain and no hail. E. R. Eldridge (p. 1071) testified that at Washington the cloud reached a little beyond the zenith. At Lone Tree and Nicholl's Stations I found by personal inquiry that there was a very heavy thunderstorm. These stations lie eighteen miles north-northeast of Washington. It is evident, moreover, that the cloud must have extended considerably beyond the area over which it rained. It is probably, therefore, no exaggeration to assign thirty miles as the diameter of the cloud from south-southwest to north-northeast.

Arthur Howell (p. 1071) testified that at Yalton, five miles north of the tornado, three fell a heavy rain of about an hour's duration. The storm traveled about thirty miles per hour. This would give the cloud an extent in the direction in which the storm traveled of more than thirty miles. There is a general agreement among the witnesses that a little hail fell some few minutes before the advent of the funnel, and a little rain immediately after its passage. The whole appears to have occupied at least thirty minutes in passing. This would give the cloud at the funnel a width of at least fifteen miles in the line of its progress. Probably it was considerably greater. We may, therefore, safely conclude that we are within the limits when we assign to the centrifugal cloud an average horizontal diameter of thirty miles.

I have no data for determining the elevation of the under side of the centrifugal cloud beyond what is involved in those for measuring the altitude of the centripetal. There must, however, have intervened a very considerable space between the two. For if there was nothing intervening there could be nothing to prevent the under, and specifically lighter, air from taking the shortest way up. There could be no reason why it should first rush to a center, ascend there, and then rush from it.

Dimensions of the centripetal current.

The data for determining these are still less precise than the preceding, but yet sufficiently so to give a more definite idea than any mere description in general terms.

H. C. Vittitoe (p. 1071,) saw, when three miles to the northwest of the tornado-path, white underclouds rushing to a center a little south of the zenith. A. Vandevere, whose evidence may be here adduced, although it refers to the tornado in Illinois, states: I have reliable information that two or three miles to the north the clouds were seen rushing south. The clouds came also from the south. Nearly all the witnesses who watched the approaching storm tell of clouds seen darting toward each other from opposite directions. It was impossible, however, to obtain anything like accurate measurements, owing to the distances being unknown. If we suppose that the centripetal clouds had a horizontal diameter of four miles, we may obtain a determination of elevation from the data given by E. R. Eldridge, (p. 1071.)

At four miles' distance, the point where the lower clouds seemed to join the higher appeared to him to have 35° of elevation. Deducting two miles from the distance for the assumed diameter of the centripetal clouds, we have an elevation of 1.4 miles.

J. W. Plumber (p. 1062) gives the angle subtended by the centripetal clouds when several miles distant, at about 45°, and the angle of elevation at about 35°. If we assume the distance to have been five miles, we should have over 4.6 miles as the diameter of the centripetal clouds, and 3.5 as the altitude, which latter figure is, perhaps, though not necessarily, too great.

The assumed distance of five miles refers to the base of a perpendicular from the summit of the cloud to the ground, and it is probably not too great since it corresponds to only ten minutes' motion of the storm. These clouds attracted attention by the great rapidity of their motion toward a common point; but their velocity gradually diminished from the center to their outer limits. They undoubtedly commenced the journey with a velocity by no means striking, and in much smaller and less dense masses. Hence the probability is that they extended much farther than they were observed with sufficient attention to leave an impression upon the memory. Moreover, the current in which they originated must have been in motion toward the vortex before they were formed, because they owed their existence to the circumstances con-

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nected with that motion. It is, therefore, probable from these data that in assigning ten miles as the diameter of the centripetal current at the altitude of these clouds we do not overrate it.

There is good reason for believing that the diameter of the centripetal current was not less at a considerable elevation than at the earth's surface, because of the many obstacles there opposed to its progress. Yet R. L. Harper testifies that, at Baden, three miles northwest of the storm-center, the wind changed from northeast to northwest as the storm passed. This implies that it blew at least some few minutes from a northerly direction, and also with force sufficient to attract attention. Suppose it blew 20 minutes in all from a northerly direction, we should have, since the storm was traveling thirty miles per hour, a diameter of nearly twelve miles for the surface centripetal current.

It is here necessary to the force of the reasoning to call attention to the fact that the wind, on the 22d of May, was, in accordance with the barometric gradient, southerly.

William P. Lisk (p. 1048) states that about twenty minutes before the arrival of the tornado the wind blew from the north. This would give a diameter of twenty miles, that is, assuming the northwest quadrant to be as extensive as the northeast.

M. Williams, (p. 1048,) a very careful witness, states that about twenty-five minutes after the passage of the whirlwind, the wind came again from the southwest. This also gives a diameter of twenty miles. The witnesses (see Keota evidence, &c.) generally testify that hail fell from 15 to 30 minutes before the whirlwind, and rain for as long a period after. They further, almost unanimously, say that the wind was easterly with the hail and westerly with the rain. If we assume 20 minutes as the duration of each of these winds, we again obtain twenty miles as the diameter of the inrushing winds at the earth's surface.

If the disturbing influences were not much greater at the earth's surface than at a higher altitude, the dimensions of the whirl should, within the limits of the centripetal wind, owing to the absence of friction, vastly increase as we ascend. Moreover, since the funnel was first formed at a considerable elevation, and since it touched the ground with a narrow point, and merely incidentally, as it were, since it for long distances ceased to strike the earth, and yet proceeded with undiminished energy; since, in short, both the originating and sustaining sources of its power seem to have mainly existed high in the atmosphere, we have the strongest reasons for concluding that the horizontal dimensions of the centripetal current were very much greater at its more elevated portions than at its base. It would therefore appear to be not unlikely that the diameter of the centripetal current was not greatly exceeded by that of the centrifugal.

Since writing the above I have received a communication from Frank McClintock, correspondent of the Smithsonian Institution, West Union, Iowa. He states that there was a thunder-storm in the morning and another in the afternoon; that the wind changed from the south to the west rapidly at 3.45 p. m., and that it worked back to the south before 9 p. m. This change of the wind agrees with the time at which the tornado passed Washington, Iowa, allowance being made for the interval which must elapse before the atmospheric disturbance could travel over the one hundred and twenty intervening miles. This change of the wind may, however, have been due to the thunder-storm mentioned. We are not, therefore, entitled from this solitary instance to conclude that the tornado had a radius of one hundred and twenty miles, although it renders it somewhat probable that it did.

The following is also a late communication. Capt. J. W. Stewart, of the steamboat Victory, states:

The tornado occurred opposite Buffalo, Iowa. The time was approximately about 4 p. m. The sky-light, pilot-house, and chimneys were blown overboard. The wind came in three heavy gusts, accompanied by very heavy rain, in fact, almost a waterspout, and the darkness was intense. The duration was not more than five or seven minutes.

The dimensions of the funnel.

The height and size of the opaque funnel varied, as seen by the eye of an observer. At times it barely touched the ground with a narrow point, at others it stood on a broader base, while for long distances it ceased to touch the ground altogether. The clouds into which its summit disappeared, appear not always to have preserved the same elevation. These changes, however great they may have seemed to the eye witnesses, are yet in themselves insignificant when we realize that this funnel-shaped phenomenon was the base of an ever-widening column ten to fifteen miles high.

The data for calculating the dimensions of the visible portion of the funnel are more numerous than precisely accurate. In criticising them, it is to be remembered that the apparent height depended not merely upon the distance, but also upon the fact that on account of the inclination of its sides a greater portion of the funnel was seen by observers at the distance of a mile or two than by those nearer.

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To Mr. R. L. Jay, the funnel when three miles distant appeared to be about one-fourth mile high.

M. Williams (p. 1048) states that when the funnel struck the ground the fences for 60 yards were carried away. It does not appear probable, however, that the base of the funnel was 60 yards wide at this point. But suppose we assume that it was, and also assume that the width of the summit was five times that of the base, which his description warrants. When at the distance of 300 yards the angle of elevation was supposed to be about 75°. From these data the distance of the witness from the base of a perpendicular from the edge of the summit would be 180 yards. This gives an elevation of 672 yards.

Sam Brunt testifies (p. 1049) that the breadth of the funnel, when on his farm, appeared to be about 100 feet.

Wm Davis (p. 1050) places the angle of elevation at 15° when half a mile distant. This gives an elevation of 235 yards.

Fred. Tollman (p. 1050) at 70 yards distance estimated the angle of elevation of the summit of the lower funnel at 60°. This gives an elevation of 121 yards.

Matthias Gengler (p. 1052) from an elevation of 200 feet and a distance of one mile estimated the angle at 55°. This gives an elevation of 2,580 yards.

Matthias Hotel (p. 1053) viewing it from the same distance and direction, but from a lower level, gave the angle at from 55° to 60°. This may be regarded as identical with the last.

Eli Walker (p. 1053) gave 30° at the distance of one and a half miles. Hence we have an elevation of 1,524 yards.

E. Stout (p. 1053) one and a half miles, 15°, and elevation of 707 yards. This refers only to the lower funnel.

Rev. J. P. Coffman (p. 1060) one mile, 25°, and elevation 821 yards.

F. Brown (p. 1061) one and a half miles, 15°, and elevation 707 yards. Mr. Brown estimated the breadth of the top at five times that of the base.

J. W. Plumber, (p. 1062,) three-fourths mile, 25°, and elevation 615 yards.

John Maughlin, (p. 1062,) 200 yards, 15°, and elevation 54 yards.

R. M. Stevenson, (p. 1063,) 700 yards, 35°, and elevation 490 yards.

The smallest of the results is 53 yards, and it may be safely discounted, because, at the distance of 200 yards, the darkness was great and the wind very strong. The time for observation also in such a position, with the storm directly approaching, was brief. The most reliable results are those obtained from observations taken on the south side of the storm-path, and at a distance of at least a mile from it. There the base-line could be accurately determined, and ample opportunity was had for calm observation. I therefore value the data on the subject of elevation afforded by Matthias Gengler and Matthias Hotel above all others. Their elevated positions gave them a splendid opportunity of watching the magnificent spectacle. The tornado was moving steadily along North Skunk River, without jumping up and down and skipping from side to side. Eli Walker and E. Stout, while occupying a position otherwise good, could not so well determine the distance of the meteor, because it was approaching them. Besides, the figures of E. Stout refer only to the lower funnel. These four witnesses watched the meteor at the same time. I therefore conclude that the tornado column was, from a favorable position, visible at some parts of its course to a height of between one and two miles.

In this connection it should be remembered that the data furnished by E. R. Eldridge (p. 1071) gave an elevation of one and a fourth miles to the cloud which he saw bending forward, but did not recognize as funnel-shaped.

Wherever there was evidence of the funnel having touched the ground there was, to a greater or less breadth, what I have designated as the vortex of extreme violence, varying from 100 yards in breadth to nothing. Without having positive evidence, and notwithstanding that there was everywhere a gradual diminution of violence from the center to the circumference except in the remarkable phenomenon of streaks or arms, and no abrupt transitions, I could not help concluding that the path of greatest violence was identical, or nearly so, with the diameter of the base of the funnel when it touched the ground. This would give it an average diameter of about 30 yards. The witnesses are generally agreed that the summit was several times wider than the base. The exceptional case in which two funnels are superimposed will hereafter be treated. If we assume that the visible top was five times the diameter of the base, we have, say for the altitude of one mile, a diameter of only 150 yards. I think, however, that, owing to its great elevation and the optical delusion connected therewith, and the general belief of the spectators, the funnel was, at the very utmost, only a few hundred feet high; the diameter of the summit was very much greater.

The changes seen in the funnel.

Some observers saw only one funnel; others saw two funnels superimposed, with the narrow ends together, and the smaller one beneath; while a good many saw two

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and even three funnels, side by side. The evidence on all these points is beyond question. At first I was inclined to believe that two or more funnels had actually touched the ground and traveled side by side. The sketch of the storm by R. J. Cambell seemed to favor this explanation. It shows a protuberance on each side of the funnel, which looks like an inceptive funnel. The fact that a second funnel should travel along on the southeast side of the main one without disturbing the symmetry of the action of the latter, as exhibited by the ruins, did not appear altogether incredible, for it is abundantly evident from the statement of facts that the damage was done by a wind blowing in the path of the tornado when the black funnel hovered above or slightly touched the ground. Thus an incipient funnel, moving along the southeast side of the main funnel, and occasionally making a dip, would produce no appreciable discord in the disposition of the ruins. An insuperable objection to this theory was found in the unanimous testimony of the eye-witnesses that the funnels approached each other and combined to form one. Another objection was found in the lack of unity thus introduced into the conception of the magnificent whole. Finding this explanation untenable, I endeavored to think the possibility of smaller auxiliary funnels, each of the a perfect whirl, moving in spirals nearly or altogether identical with those pursued by the confluent winds. This I found to be more difficult than the first. The chief objection was the total lack of a conceivable cause of the existence of these smaller whirls. The second was the peculiar circumstance that while one observer saw two funnels, another in the same position saw only one, or saw two superimposed with the smaller ends together. No possible arrangement of two independent funnels with the smaller ends down could produce the optical illusion of two funnels superimposed with the smaller ends together. I found what I believe to be the key to the difficulty while considering Mr. Marbourg's delineation of the two funnels joining in one tube. (p. 1065.) The other observers who saw two or more funnels evidently had the whirl of their attention confined to these, and did not observe what was above them. Hence the two combine at what he estimated an altitude of fifty feet and form one. Another witness, at the same place and time, saw only one funnel. At Lancaster, some saw only one, others saw two superimposed, and others saw two side by side, and all at the same time. There was, therefore, an unavoidable necessity for some explanation which could reconcile these antagonistic appearances.

Explanation.

There is excellent evidence to show that the funnel moved at its base with a sort of pendulum motion; that it seemed to stand still for a moment and then to bound suddenly forward. The evidence on this point is so general that we need not recapitulate it. But we have no reason for supposing that this oscillating motion extended to any considerable distance above the ground, for it is only in the want of homogeneity in the atmosphere and the resistance opposed to the free course of the winds by the earth's surface, that we can find a cause for this pendulum motion. Let us suppose that the funnel is over a well-watered and well-wooded ravine, with its path at right angles to it. It is evident that the air at some distance above the ground will find much less resistance to the forces drawing it into new paths than that on the surface, where the friction is so important an element. In the forward march of the tornado the base would thus be somewhat left behind. The warm, moist air of the ravine would increase this tendency, on account of its specific levity. The funnel would become bent thus:



But the inrushing winds follow the path of least resistance toward the area of greatest rarefraction. The bending, therefore, cannot proceed far, for the southwest winds, whose direction of motion is carrying them away from the base of the inclined funnel, will find less resistance and a shorter path toward the greatest rarefaction, by striking up into the nearest point in the side of the funnel.

A streak of rarefaction great enough to produce condensation is thus generated. This arm of the funnel, affording the shortest way for the winds, will increase in rapidity. The other will decrease, becoming mainly confined to the northwest side. Meanwhile the intervening air will become rarefied and set in motion; the two arms will suddenly unite, and the funnel present again its original proportions. These transformations must take place within a brief space of time, for the tornado is traveling at the rate of half a mile per minute. When we consider, in addition, the darkness, we will be at no loss to conceive why these two branches should present the appearance of one funnel with its smaller end down, and why, to a less favorably situated or more superficial observer, the whole should appear as one.

One difficulty yet remains to be obviated. Since the arm moves forward in a curve to the center, and the velocity of the inrushing winds at the funnel far exceeds a hundred miles per hour, how is it possible for the observer, in the darkness, to see the appearances distinctly? Mr. Marbourg gives the distance between the two arms

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at 200 feet. This space would be traversed in one second by winds of so great velocity, and the condensed vapor would fill the whole space before it had time to disappear. The very velocity itself would render distinct vision difficult. We must not, in short, confound the path of the winds with the winds themselves. While the winds were rushing up in a slanting and curving direction along these arms, the arms themselves might be moving forward with a much less rapid motion. If it were possible to determine the inclination of these arms to the perpendicular it would aid in calculating the force of the wind. Mr. Marbourg stated that the distance between the bases of the two arms was 200 feet, and the height, when they joined together, 50 feet. He gave 80 to 100 feet, however, as the height, to the editor of the Washington County Press. His own delineation favors the belief that the height was greater than 50 feet. He could easily judge of the distance between the arms, but was very liable to be mistaken in estimating the height. The error, therefore, will probably not be great if we assume that the funnels joined together at the height of 100 feet. This would give these arms an inclination of 45°.

The direction in, and the velocity with which the tornado traveled.

From its starting-point on South Skunk River until it reached North Skunk River, a distance of ten miles, the tornado traveled in an east-northeast direction. It then turned a little south of east and followed the course of that river for two miles. It then went east-northeast until it came to Rock Creek, when it turned a little west of north and followed the course of the creek for a short distance. It then traveled northeast until it ceased to touch the ground three miles from Keota. After lifting itself from the ground it traveled about east-northeast, striking again at Westchester, Washington County. From this point until it reached Enoch Wright's, a distance of over nine miles, its course was nearly straight, varying between northeast and east-northeast. Its course then became very crooked, bending in curves from northeast to southeast, and *vice versa;* but on the whole traveling east until it came within a mile of the confines of Washington County, when it made a decided turn to the southeast. Here its path lay down the declivity toward the well-wooded ravine of Goose Creek. When within half a mile of the creek its traces became so feeble that it was impossible to track it farther. It was at this point, within one and a half miles of Iowa River, the course of which is here nearly parallel with that of the tornado. The crookedness of its path reached its maximum within the last half mile of its career, before ceasing to touch the ground, as a black funnel at A. Davidson's farm, Highland Township. Within this half mile it bent first a little to the southeast, then to the northeast, then to the southeast, and again back to the northeast, when it disappeared.

After leaving Crooked Creek, at the commencement of its career in Washington County, and until it reached to near Goose Creek, the tornado traversed an elevated, well cultivated region, almost totally devoid of trees and water-courses. There was apparently nothing in the configuration of the ground over which it passed which could account for its changes of direction. These changes, moreover, were not generally abrupt, the tornado sweeping in graceful curves from one direction to another. It is to be noted, however, that the curving of its path commenced after it came within the influence of the moister, warmer air of the Iowa River, and that the general deviation of its course from the northeast direction, which it had on the whole hitherto followed, led it down the valley of the Iowa River.

In order to determine the velocity with which the meteor traveled, it was necessary to obtain the precise time of its arrival at different points. The difficulty of obtaining precise time in an agricultural district is always considerable. In addition, no one thought of looking at his clock or watch; hence, although every witness was questioned on this point, there were but few who could even approximate to the time. The majority thought that they had a remarkably definite idea when they could tell between what hours it occurred. Reliable time, it is believed, was obtained at least at two places in Iowa, at Wolfden school-house, Lancaster Township, Keokuk County, and at A. McKee's house, section 23, Cedar Township, Washington County. The times obtained at these places were corroborated by the testimony of those likely to be best informed. The tornado struck the school at 2.15 p. m.; it arrived in section 23, Cedar Township, at 3.10 p. m. The distance between these places in a straight line is twenty-seven miles. This gives a velocity of 29.4 miles per hour. The crookedness of its course, though not great, would bring its velocity along its path to thirty miles per hour at least.

The direction of the centripetal winds.

The wind blew in spirals toward the center of the vortex, the direction of revolution being contrary to the hands of a watch throughout the whole course of the storm. The evidence in support of this, as given in the statement of facts, is overwhelming, and recapitulation unnecessary. The mere fact that all who had an opportunity of

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seeing the funnel saw that it was circular is sufficient to prove that it was a whirlwind, for on no other hypothesis could the circular form be accounted for. Then the witnesses, almost without exception, saw this funnel whirling contrary to the hands of a watch. Then the illustration of the position of the ruins of the houses and of the fallen trees, &c., proves beyond a doubt that a merely centripetal wind could not have done these things. Again, that the wind was not blowing in circles round the center is sufficiently demonstrated by the fact that everything, except within the most violent vortex, was thrown toward the center. The ruins invariably lay most thickly there. The only form of motion capable of producing these effects is a mean between the circular and the direct centripetal, to wit, the spiral. The illustrations give copious ocular demonstration that such was the case. The ruins of houses, whenever they could be distinctly traced, proceeded in a curve toward the center, which apparently was always reached before the completion of an entire revolution. This does not imply that the centripetal winds never performed a complete revolution before reaching the center, but only that from within about 100 yards of the center this did not take place. Ruins carried from that distance seemed generally to reach the center in about two-thirds of a revolution. This led me to assume that at about 100 yards from the center the wind generally made an angle of about 25° with the tangent. This gives a centripetal component compared with the circular as .42262 is to .90631.

Besides its horizontal motion, the wind had necessarily an ascending motion, which reached its maximum at the center and its minimum at the circumference. The necessity for this lies in the proof of the centripetal motion of the wind; otherwise the centripetal motion of the wind would require to double itself at half the radius from any point toward the center. This would soon give it a motion infinitely great, which is absurd. There would also be no means of escape for it at the center. We have, besides, ocular demonstration. To a great many excellent witnesses the funnel presented the appearance of a screw with its thread running upwards. In addition, all objects within the sphere of the tornado seem to have been partly lifted, partly pushed forward. We have seen that at A. Gibson's house the arms made an angle with the perpendicular of probably about 45°. Since these arms, as there is every reason to believe, were inclined in the normal direction of the winds, which is that of least resistance, we are justified in assuming that in the black funnel itself the inclination of the winds to the horizon was at least as great, and probably greater.

The velocity of the wind.

This is a very difficult topic. The task would have been much easier if we had been dealing with a horizontal wind merely. If even the perpendicular and horizontal components were invariable, the hope of a tolerably accurate solution of the problem would be much greater; but while the former decreases from the center to the circumference, the latter increases. Neither is it possible to do more than approximate to the relative strength of these components at any point. In order that no chance of a solution might be lost, I collected the following heterogeneous data:

1. A school-house, weighing 30,000 pounds, was pushed 25 feet from its foundations. The surface exposed to the wind = 360 square feet + the roof, which had a slant of 45°, (p. 1049.)

2. A beam, 14 feet by 2 by 4 inches, weighing 25 pounds, was carried 35 yards, and driven into black mold 3 feet 9 inches, at an angle of 35°, (p. 1050.)

3. An iron sausage-machine, 6 by 8 inches greatest exposure of surface, and weighing 15 pounds, was carried away, (p. 1054.)

4. An oak tree, 3 inches in diameter, was perforated by a board 6 by 1 inches and (probably) 8 feet in length, (p. 1057.)

5. A hog, weighing 400 pounds, was carried a mile and a quarter. A cow and horse were carried 400 yards, (p. 1058.)

6. A horse-power machine, weighing 2,400 pounds, and exposing a surface of 2 square feet, was pushed forward 6 yards, (p. 1058.)

7. A post, 8 feet long and 4 inches in diameter, and which had been driven 3½ feet into the soil, was pulled out by the wind, (p. 1059.)

8. An elm fence-board, 8 feet by 6 by 1 inches, was driven into the soil 4 feet, at an angle of 45°, (p. 1060.)

9. A door, exposing a surface of 18 square feet, was held by four men against the wind, (p. 1063.)

10. A house, exposing 280 square feet to the wind, having a floor of 480 square feet, and weighing 20 tons, was pushed 6 feet from its foundations. It was then lifted over the tops of trees 20 feet high, (p. 1063.)

11. A heifer weighing 700 pounds was carried away, (p. 1063.)

12. A house presenting to the wind a surface of 176 square feet without the roof, and weighing 10 tons, was carried 24 yards while falling 3 feet, (p. 1064.) The wind struck it nearly on the end.

13. An oak sill, 16 feet by 8¼ inches, and weighing 300 pounds, was driven 4 feet into

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black loam at an angle of 45°. It was carried 25 yards northeast with the house, and 18 yards east after parting from the house, (p. 1064.)

14. A granary, exposing 128 square feet of surface, and weighing 60,000 pounds, was pushed 14 feet, (p. 1064.)

15. A plank 16 feet by 1 foot by 2 inches, was driven 4 feet into the soil at an angle of 45°, (p. 1064.)

16. A corn-sheller, weighing 640 pounds, was carried 400 yards, (p. 1064.)

17. An oak board, 4½ feet, 4 by 1 inches, was driven through an oak post 4 inches in diameter, (p. 1066.)

18. A house, exposing a surface of 392 square feet, + the slanting roof, and weighing 20 tons, was carried forward 18 feet while falling 2 feet, (p. 1066.)

19. A house, exposing 533 square feet, and weighing about 25 tons, was pushed from its foundations, (p. 1068.)

20. A beam 14 feet by 6 by 2½ inches was driven 3 feet into the soil in a slanting direction. Its weight was 50 pounds, (p. 1066.)

21. A stove, exposing a surface of 3 feet by 21 inches, was pushed 12 feet, (p. 1068.)

22. A granary, exposing a surface of 256 square feet to the wind, and weighing 55,000 pounds, was carried 21 yards while falling 6 feet, (p. 1068.)

23. A bell, exposing a surface of 1 square foot, weighing 115 pounds, and suspended 12 feet high, was carried 60 feet, (p. 1068.)

24. A hog weighing 200 pounds was carried 500 yards, (p. 1068.)

25. A green log of water-elm, 8 feet long by 7 feet in circumference, and weighing 2,000 pounds, was carried 50 yards, (p. 1069.)

26. A horse, weighing 1,080 pounds, was carried 45 yards, (p. 1069.)

It will be better to treat all similar examples together, and first let us examine the data concerning the houses.

If we estimate the static friction of a frame house upon a stone foundation or upon posts firmly fixed into the ground, and to which it is nailed, at one-half the weight of the house, it does not seem likely that we shall err by excess. Upon this basis it is easy to calculate the minimum velocity of a horizontal wind necessary to push it from its foundations. The difficulty is that we are dealing with a wind having a perpendicular component to its velocity. If the wall of the house was perfectly smooth, and since the air is nearly perfectly elastic, the only force exerted upon it by a wind blowing at any angle to its surface would be perpendicular to that surface. Moreover, whatever force the perpendicular component may exercise upon the wall, owing to its roughness, must have upon the house the effect of an overturning rather than a lifting power. But, since friction is independent of extent of surface, this overturning power would not assist in overcoming friction. The fact, also, that the houses, while being carried bodily through the air, were not made to spin round on an axis by this perpendicular component, there being then no resistance, beyond inertion, to motion in a circle, would seem to prove that its effect was not great. It would, therefore, appear that an approximation may be made to the velocity of the horizontal wind by simply calculating upon the given assumption of the relation of weight to friction the minimum force required to push these houses from their foundations. The following are the results for the given cases:

1. Pressure per square foot 41.7 pounds. Velocity of wind 91.3 miles per hour.
10. Pressure 71.4 pounds. Velocity 119.5 miles.
12. Pressure 56.8 pounds. Velocity 106.6 miles.
14. Pressure 234.3 pounds. Velocity 216.5 miles.
18. Pressure 51 pounds. Velocity 100.9 miles.
19. Pressure 46.9 pounds. Velocity 96.8 miles.
22. Pressure 107.4 pounds. Velocity 146.6 miles.

The roofs in these calculations have been neglected when the wind struck the side of the house, because if the wind was ascending at an angle of 45° it would not strike the roof at all, and even a much less angle of inclination would produce a comparatively small effect; for if the wind were blowing horizontally 70 per cent. of its total force would be exerted perpendicularly to the roof. This 70 per cent. would be resolved into two components of 70 per cent. each, or of 49 per cent. of the force of the wind, one of which would add to the weight of the house and consequently increase the friction by one-half its amount, while the other would aid in overcoming the friction. Thus, even in the case of a horizontal wind exerted upon a roof sloping at 45°, only 24½ per cent. of its total amount is effective to aid in overcoming friction; that is, neglecting the friction of the wind against the roof.

Only one of these buildings was not, in addition to being pushed from its foundation, carried away, viz, case 14. It, however, was pushed through a dense mass of tough rubbish, and its sides were bent from the perpendicular. Owing to its small surface and great weight the force of the wind exceeded the minimum required to push the building from its foundations less in this case than in any of the others. Hence we have the great velocity of 216.4 miles per hour, or of 317.4 feet per second, in a horizon-

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seeing the funnel saw that it was circular is sufficient to prov... greate... wind, for on no other hypothesis could the circular form be ... a stand witnesses, almost without exception, saw this funnel whir... s by no ... of a watch. Then the illustration of the position of the r... shot ... fallen trees, &c., proves beyond a doubt that a merely ... g it, and ... done these things. Again, that the wind was not ... one eye-w... center is sufficiently demonstrated by the fact that ... ghtning. ... violent vortex, was thrown toward the center. T... ae latter on... there. The only form of motion capable of prod... n that the a... the circular and the direct centripetal, to wit. ... d by gravity. ... pious ocular demonstration that such was t... ecessary to ov... they could be distinctly traced, proceeded i... sure of 113.6 pounds ... ently was always reached before the comp... imply that the centripetal winds never p... of the wind from these ... ing the center, but only that from wit... d in a well-nigh normal ... take place. Ruins carried from that ... about two-thirds of a revolution. T... orce exerted upon the side of the ... the center the wind generally mad... make the building revolve, and so t... gives a centripetal component com... d not take place we assume that the ...

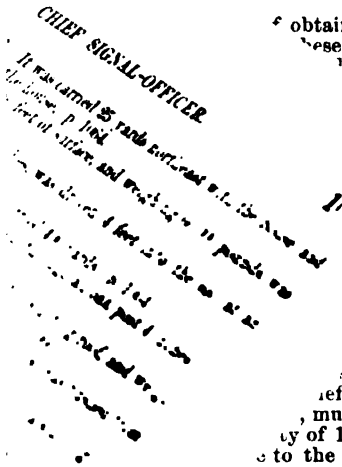
Besides its horizontal motion, t... by comparison of the force required to ... reached its maximum at the cen... travel over the horizontal distances given, ... sity for this lies in the proof... rough the perpendicular spaces given, that ... centripetal motion of the wi... ood grounds for concluding that there was ... any point toward the cent... an that due to the perpendicular component ... which is absurd. There w... have, besides, ocular dem... he house falls 3 feet while traveling 24 yards. ... presented the appearanc... ed, therefore, the motion of the house due to the force ... all objects within the e... eet, while that due to the force of gravity amounted ... pushed forward. We ... eleration caused by the wind was 24 times greater tha... the perpendicular of ... ow the force is as the square of the acceleration. Hence, ... believe, were inclin... en exerted, the force of the wind must have been 576 times ... sistance, we are ju... es a total pressure upon the side of the house of 5,760 tons, or 3... the winds to the ... which is absurd, for the force generated by a difference of pressure ... nerated by a difference of a whole atmosphere, and that amou... 0 pounds per square foot. We are, therefore, irresistibly drawn ... that the houses, while being driven forward, were partially suppo...

This is a v... We may learn how this was accomplished by studying case 10. Th... dealing wit... pushed from its foundation for 6 feet, then turned upon its edge, and ... componen... ted over the tops of trees 20 feet high. Probably the trees were ... would be ... ow the house to ascend at an angle of 45°, thus reducing the height t... ference, ... to about 16 feet. The problem is how to apply a wind in order to gener... relativ... required. We have the evidence of L. W. Low, (p. 1050,) that as soon as h... tion n... up on its edge, the flooring flew to the roof. This is probably the sam...

1. ... are in similar cases, and its cause is this: as soon as the edge of the house ... The ... wind rushes in, and finding its further progress barred, becomes instan... 45° ... ssed by the wind in rear. It thus exerts over the whole interior of the ... ressure nearly equal to that exerted upon one side of it by the wind. If ... d ... is a weak one the immediate result is that it is burst asunder. If it is a stro... as it evidently was in this case, the compressed air, acting on the one ... ground, and on the other side on the inside of the house will, if the compr... sufficiently great, lift the house. The area of the floor of the house in ques... 480 square feet, and its weight was twenty tons. The pressure per square foo... perpendicularly to the area of the floor, required, in order to lift the house, w... fore 83.3 pounds. But the force actually exerted did not alone suffice to lift ... ing. It must have raised it in a very brief period to a height of 16 feet: for ... tion of the wind urging it forward was yet in full operation. If we suppo... occupied one second in ascending these 16 feet, the lifting power exerted ... been double that of gravitation, or 166.7 pounds per square foot. Moreov... hypothesis, the force in these calculations has to be applied perpendicularly to ... But actually it was not, the house being tilted up on its edge. Some of the ... the wind would also be lost by escaping through openings. Further, as so... house was lifted from the ground the resistance to the wind, and therefore ... pression in the interior of the house, would be in a great measure removed. ... ure of 200 pounds per square foot would appear, therefore, inadequate to ac... the work; that is, a pressure of the wind, or a velocity of two hundred miles ...

It is readily perceived that a body which is being accelerated by the wind ... partially presents its under surface to it, have the action of gravity upon it ... acted according to the extent of the surface exposed, &c. Such, I conceive, ... manner in which the houses, while traveling forward, were in the main partly ... of the effects of gravity.

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f obtaining even an approximation to the velocity of the
ese calculations. In my opinion the best case is that of
v on the ground. The total weight of itself and con-
herefore conclude that since the wind in this case
d and sixteen miles per hour, that it had a ve-
of its path, and at particular points some-

not probably expose a greater surface
one horses of this weight were car-
., therefore, must in these cases have
foot, and its velocity 129.8 miles per

osing 7½ square feet of surface was pushed
-half the weight the pressure must have been
ocity 78.3 miles horizontally.
a surface of 17.8 square feet and weighing 2,000
was probably barely lifted from the ground, if it
strike deeply into the soil when it stopped. Its path
left on the ground. The lifting power of the wind, in
, must have been 112.3 pounds per square foot, represent-
y of 149.8 miles. It may be asked how a perpendicular
to the ground. The answer in regard to the log is that the
become compressed between the bulge of the tree and the
e, however, the surface exposed is not so large. The whole bears
a terrific but incalculable wind.
age-machine, exposing a surface of 48 square inches, and weighing 15
arried away. The lifting power must have exceeded 45 pounds per
which corresponds to a perpendicular component of 94.8 miles.
e-power machine, exposing a surface of 2 square feet, and weighing 2,400
was pushed along the ground for 6 yards. The machine lay close upon the
., allowing very little scope for lifting power. The static friction could not
been less than one-fourth the weight. Allowing one-fourth the weight of the
chine for the lifting component of the wind, which is undoubtedly an exaggeration,
ere still remains a pressure of 225 pounds per square foot, horizontally, or a velocity
of two hundred and twelve miles per hour.

2. A beam, exposing a surface of 7 square feet, and weighing 25 pounds, was driven into the ground 3 feet 9 inches, at an angle of 35°. The area of the end of the beam was 8 square inches. A columbiad 10-inch shell, when filled, weighs about 100 pounds. At the distance of 100 yards such a shell penetrated compact earth 33 inches. Its velocity at the time of impact would be about 1,200 feet per second. The earth into which the beam was driven was black mold, which had never, beyond the depth of a few inches, been disturbed by the plow. It was wet at the time. If we estimate its resistance at half that of compact earth it is not likely we shall overrate it. The columbiad shell on these premises would have penetrated the mold 66 inches. The area of a great circle of the ball is 78.54 inches. The weight, therefore, for the square inch of resisting surface amounts to $100 - 78.54 = 1.27$ pounds. The weight of the beam per square inch of its end is $25 \div 8 = 3.1$ pounds. We have, therefore, the following equation:

$$\frac{1.27 \times 45 \times (1200)^2}{3.1 \times 66} = X^2$$

hen X is the velocity of the beam in feet per second, = 634 feet. This gives the beam velocity of 432.3 miles per hour, which is evidently erroneous, for it was accelerated this enormous velocity within a space of 35 yards. Gravity acting through this istance could only have produced a velocity of 82 feet. Since the force is as the square f the velocity, the following equation gives the force of the wind upon the beam:

$$\frac{(75)^2 \times 25}{(82)^2} = \text{force} = 2{,}233 \text{ pounds pressure.}$$

Since the surface upon which this force as exerted did not exceed 0.7 square foot, the above pressure has to be increased by ne-fourth its amount in order to obtain the pressure per square foot. The result is erefore evidently very erroneous.

Calculations from similar data give like stupendous results. Perhaps, however, e apparently prodigious velocities imparted to these flying timbers may point to the ct that at some elevation above the ground the velocity of the wind was vastly reater than at the surface. It may be also that the timbers were carried to a great evation, and thus owed a large part of their rapidity of motion to gravity. There also much uncertainty concerning the resistance of soils. I shall, therefore, leave e remaining data uncalculated, as involving too many unknown quantities.

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tal direction. It is also probable that in this case the kinetic friction was greater than the static, and that it increased every moment until the building came to a stand.

In the case of the other houses the maximum velocity of the wind was by no means necessary to push them from their foundations. They were in addition shot forward as if from a cannon, without touching the ground while almost grazing it, and at the same time maintaining their normal position. We have the testimony of one eye-witness that the house went like the railroad; of another that it went like lightning. Since the house in the former case only traveled 40 yards, (p. 1063,) and in the latter only 75 yards, the above expressions would appear to justify the assumption that the acceleration of the houses could not have been less than that produced by gravity, or 32 feet per second. This would require a force double of that necessary to overcome friction on the assumed basis. This gives in case 12 a pressure of 113.6 pounds, or a velocity of 150.7 miles per hour.

There is yet another way of calculating the velocity of the wind from these houses. We have seen that in several cases they went forward in a well-nigh normal position close to the ground, and falling as they went.

The perpendicular component of the wind's force exerted upon the side of the building should, we have seen, if effective, tend to make the building revolve, and so throw it out of its normal position. Since this did not take place we assume that the force was not effective. If, therefore, we find by comparison of the force required to impart motion to a body sufficient to enable it to travel over the horizontal distances given, while the force of gravity is drawing it through the perpendicular spaces given, that is unreasonably great, we shall have good grounds for concluding that there was somehow a lifting power exerted other than that due to the perpendicular component of the force of the wind.

Let us examine case 12. The house falls 3 feet while traveling 24 yards. In the time during which it traveled, therefore, the motion of the house due to the force of the wind was 24 yards or 72 feet, while that due to the force of gravity amounted only to 3 feet; that is, the acceleration caused by the wind was 24 times greater than that caused by gravity. Now the force is as the square of the acceleration. Hence, if a lifting power had been exerted, the force of the wind must have been 576 times that of gravity. This gives a total pressure upon the side of the house of 5,760 tons, or 32.7 tons to the square foot, which is absurd, for the force generated by a difference of pressure cannot exceed that generated by a difference of a whole atmosphere, and that amounts only to about 3,350 pounds per square foot. We are, therefore, irresistibly drawn to the conclusion that the houses, while being driven forward, were partially supported by the wind. We may learn how this was accomplished by studying case 10. The house was first pushed from its foundation for 6 feet, then turned upon its edge, and afterward lifted over the tops of trees 20 feet high. Probably the trees were so near as to allow the house to ascend at an angle of 45°, thus reducing the height to be ascended to about 16 feet. The problem is how to apply a wind in order to generate the force required. We have the evidence of L. W. Low, (p. 1050,) that as soon as his house turned up on its edge, the flooring flew to the roof. This is probably the usual procedure in similar cases, and its cause is this: as soon as the edge of the house is lifted the wind rushes in, and finding its further progress barred, becomes instantly compressed by the wind in rear. It thus exerts over the whole interior of the house a pressure nearly equal to that exerted upon one side of it by the wind. If the house is a weak one the immediate result is that it is burst asunder. If it is a strong one, as it evidently was in this case, the compressed air, acting on the one side and the ground, and on the other side on the inside of the house will, if the compression be sufficiently great, lift the house. The area of the floor of the house in question was 480 square feet, and its weight was twenty tons. The pressure per square foot exerted perpendicularly to the area of the floor, required, in order to lift the house, was therefore 83.3 pounds. But the force actually exerted did not alone suffice to lift the building. It must have raised it in a very brief period to a height of 16 feet; for the action of the wind urging it forward was yet in full operation. If we suppose that it occupied one second in ascending these 16 feet, the lifting power exerted must have been double that of gravitation, or 166.7 pounds per square foot. Moreover, by the hypothesis, the force in these calculations has to be applied perpendicularly to the house. But actually it was not, the house being tilted up on its edge. Some of the power of the wind would also be lost by escaping through openings. Further, as soon as the house was lifted from the ground the resistance to the wind, and therefore the compression in the interior of the house, would be in a great measure removed. A pressure of 200 pounds per square foot would appear, therefore, inadequate to accomplish the work; that is, a pressure of the wind, or a velocity of two hundred miles per hour.

It is readily perceived that a body which is being accelerated by the wind while it partially presents its under surface to it, have the action of gravity upon it counteracted according to the extent of the surface exposed, &c. Such, I conceive, was the manner in which the houses, while traveling forward, were in the main partly relieved of the effects of gravity.

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The extreme difficulty of obtaining even an approximation to the velocity of the wind is very appreciable in these calculations. In my opinion the best case is that of 14, because of its remaining firmly on the ground. The total weight of itself and contents was also easily obtained. I therefore conclude that since the wind in this case had a velocity exceeding two hundred and sixteen miles per hour, that it had a velocity equally great over a large portion of its path, and at particular points sometimes greater.

A horse or a cow of 1,000 pounds weight does not probably expose a greater surface to the wind than 12 square feet. Many cows and some horses of this weight were carried long distances. The lifting force of the wind, therefore, must in these cases have exceeded $1,000 \div 12 = 83.3$ pounds per square foot, and its velocity 129.8 miles per hour perpendicularly.

21. A stove weighing 450 pounds and exposing 7½ square feet of surface was pushed 12 feet. Estimating static friction at one-half the weight the pressure must have been 30.7 pounds per square foot, and the velocity 78.3 miles horizontally.

25. A log of water-elm, exposing a surface of 17.8 square feet and weighing 2,000 pounds, was carried 50 yards. It was probably barely lifted from the ground, if it was carried, because it did not strike deeply into the soil when it stopped. Its path could not be traced by marks left on the ground. The lifting power of the wind, in order just to balance gravity, must have been 112.3 pounds per square foot, representing a perpendicular velocity of 149.8 miles. It may be asked how a perpendicular wind was possible close to the ground. The answer in regard to the log is that the horizontal wind would become compressed between the bulge of the tree and the ground. In that case, however, the surface exposed is not so large. The whole bears ample evidence of a terrific but incalculable wind.

3. An iron sausage-machine, exposing a surface of 48 square inches, and weighing 15 pounds, was carried away. The lifting power must have exceeded 45 pounds per square foot, which corresponds to a perpendicular component of 94.8 miles.

6. A horse-power machine, exposing a surface of 2 square feet, and weighing 2,400 pounds, was pushed along the ground for 6 yards. The machine lay close upon the ground, allowing very little scope for lifting power. The static friction could not have been less than one-fourth the weight. Allowing one-fourth the weight of the machine for the lifting component of the wind, which is undoubtedly an exaggeration, there still remains a pressure of 225 pounds per square foot, horizontally, or a velocity of two hundred and twelve miles per hour.

2. A beam, exposing a surface of 7 square feet, and weighing 25 pounds, was driven into the ground 3 feet 9 inches, at an angle of 35°. The area of the end of the beam was 8 square inches. A columbiad 10-inch shell, when filled, weighs about 100 pounds. At the distance of 100 yards such a shell penetrated compact earth 33 inches. Its velocity at the time of impact would be about 1,200 feet per second. The earth into which the beam was driven was black mold, which had never, beyond the depth of a few inches, been disturbed by the plow. It was wet at the time. If we estimate its resistance at half that of compact earth it is not likely we shall overrate it. The columbiad shell in these premises would have penetrated the mold 66 inches. The area of a great circle of the ball is 78.54 inches. The weight, therefore, for the square inch of resisting surface amounts to $100 - 78.54 = 1.27$ pounds. The weight of the beam per square inch of its end is $25 \div 8 = 3.1$ pounds. We have, therefore, the following equation:

$$\frac{1.27 \times 45 \times (1200)^2}{3.1 \times 66} = X^2$$

when X is the velocity of the beam in feet per second, = 634 feet. This gives the beam a velocity of 432.3 miles per hour, which is evidently erroneous, for it was accelerated in this enormous velocity within a space of 35 yards. Gravity acting through this distance could only have produced a velocity of 82 feet. Since the force is as the square of the velocity, the following equation gives the force of the wind upon the beam:

$$\frac{(75)^2 \times 25}{(82)^2} = \text{force} = 2{,}233 \text{ pounds pressure.}$$

Since the surface upon which this force was exerted did not exceed 0.7 square foot, the above pressure has to be increased by one-fourth its amount in order to obtain the pressure per square foot. The result is therefore evidently very erroneous.

Calculations from similar data give like stupendous results. Perhaps, however, the apparently prodigious velocities imparted to these flying timbers may point to the fact that at some elevation above the ground the velocity of the wind was vastly greater than at the surface. It may be also that the timbers were carried to a great elevation, and thus owed a large part of their rapidity of motion to gravity. There is also much uncertainty concerning the resistance of soils. I shall, therefore, leave the remaining data uncalculated, as involving too many unknown quantities.

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The amount of the precipitation.

It was impossible to obtain more than generalities on this head. There were no rain-gauge measurements so far as I could learn. At Davenport, however, a few miles from where damage was done on the Mississippi, there fell, on May 22, 1.35 inches, as shown by the signal-service reports. From the description of the rain to the north of the tunnel, in Washington County, a greater quantity than this must have fallen at many places. It is not, therefore, likely that we shall overestimate the amount when we assume that two inches of rain fell over an area ten miles in width. Since the tornado traveled thirty miles per hour, this gives a rain-fall per minute of $\frac{2\times(10\times\frac{1}{2})\times3097600\times9\times14}{1728}$ = 23,232,000 cubic feet.

Tornado dynamics.

A cubic foot of water weighs 1,000 ounces. The weight of water which fell per minute was, therefore, $\frac{23232000\times1000}{16}$ = 1,452,000,000 pounds. It is not, probably, an exaggeration to assume that this mass of water fell on an average 6 miles or more. This gives a horse-power of $\frac{1452000000\times(6\times5289)}{33000}$ = 1,393,920,000 generated by the falling water.

From the calculations of the velocity of the wind, it is not probable that, when we assume, at the distance of 100 yards from the center, an average velocity of 12 miles per hour, we overrate it. The angle (p. 1088) which the wind made with the tangent was probably about 25°. The wind, therefore, on these bases, enters a cylinder of 100 yards radius at the rate of 50 miles per hour or 4,400 feet per minute.

From the calculations of the height of the centripetal current, we have seen that it probably extended over two miles. Let us assume that its height was two miles. Let us assume also that the velocity with which the wind entered the cylinder was equally great throughout its length. We have then the following data for calculating the quantity of air which enters this cylinder of 100 yards radius, or 628.318 yards circumference per minute. It amounts to (628.318×3) × 4,400 × (2×1,760×3) cubic feet = 87,582,502,656,000 cubic feet. Since this volume is calculated from the mechanical effects or force of the wind, and since the relation between the force and the velocity of the wind is calculated for the average pressure, it matters not in calculating the weight of the above volume of air what the barometric pressure was at the distance of 100 yards from the center. The difference of pressure due to elevation must, however, be calculated. Since the average pressure at sea-level is about thirty inches, at an elevation of one mile about 24.60 inches, and an elevation of two miles about 20 inches, and taking into account the correction due to the elevation of the country over which the tornado passed, 24 inches would be about the mean pressure up to two miles of elevation. The density of the air varies with the temperature. From the data given on page 1093, the temperature around the tornado must have been, at a fair exposure, about 76°, but was in deep-wooded ravines no doubt much greater. Since the temperature diminishes 1° for every 300 or 400 feet elevation, we may assume the average temperature to have been within the lower part of the centripetal current about 60°. The relative humidity (p. 1072) was about 65 per cent.

The weight of a cubic foot of air, at a pressure of 24 inches, a temperature of 60° and a relative humidity of 65 per cent., is 426 grs., or thereabout. The total weight of air, therefore, entering the column per minute amounts to $\frac{875825026560000\times426}{7000}$ = 53,302,020,875,922 pounds. This weight of air moves by hypothesis at the rate of one hundred and twenty miles per hour, or of 170 feet per second. This velocity is acquired from the acceleration due to gravity in falling through a space of 481 feet. The power therefore, generated by this mass of air moving with the given velocity amounts to $\frac{53302020875922\times481}{33000}$ = 77,689,092,161,166 horse-power.

The latent heat of evaporation amounts to about 1,000°. Consequently the condensation of 1,452,000,000 pounds of vapor is accompanied by the evolution of 1,452,000,000 × 1,000 calories or pound-degrees of heat. The specific thermal capacity of air, as compared with water, is as .237 to 1. The number of degrees through which this amount of heat would raise 1 pound of air, is 1,452,000,000,000 ÷ .237 = 6,126,582,278,481 degrees. But the pressure remaining the same, air expands $\frac{1}{491}$ of its volume for every accretion of 1 degree of temperature. This amount of heat would, therefore, expand 1 pound of air, 6,126,582,278,481 ÷ 491 = 12,477,764,319 cubic feet. A cubic foot of air at 30 inches pressure, 60° temperature, and having a relative humidity of 65 per cent., weighs 538.6 grains. A pound of such air, therefore, occupies 7,000 ÷ 538.6 = 12.99 cubic feet = or very nearly 13 cubic feet. A pound of air, therefore, in doubling its volume must, the pressure remaining 15 pounds per square inch, [illegible]

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weight of $13 \times 144 \times 15 = 28{,}080$ pounds through 1 foot. The total amount of work, therefore, performed by one pound of air, while expanding under a pressure of 15 pounds per square inch to 12,477,764,315 times its original bulk, is $12{,}477{,}764{,}315 \times 28{,}080$ foot-pounds. This amount of work accomplished per minute demands $\frac{12477764315 \times 28080}{33000} = 10{,}617{,}443{,}089.8$ horse-power.

We thus see that the power generated by the condensation of the amount of vapor estimated as having been precipitated is much less than that calculated to have been produced by the velocity of the centripetal winds. Theoretically this power should be diminished by the amount of expansion counteracted by the removal of so large a mass of vapor. Practically, however, it seems probable that this removal of vapor, while increasing the specific gravity of the air, yet when taking place with great rapidity serves rather to increase the rarefaction.

The horse-power required to raise 5,330,020,875,922 pounds to a height of five miles per minute amounts to $\frac{5330020875922 \times 5 \times 1760 \times 3}{33000} = 4{,}264{,}016{,}700{,}737.6$ horse-power.

These figures convey a better idea of the tremendous power of the tornado than any mere verbal description could do. They also show that the power evolved by the condensation of vapor, while enormous, is by no means sufficient to supply the whole energy developed by the tornado. We must therefore look for another source of power. This is no doubt to be found in the destruction of the atmospheric equilibrium by an abnormally-warm southerly current flowing under a much colder and consequently specifically heavier stratum of air. This brings us to the consideration of the general atmospheric conditions under which the tornado originated.

General atmospheric conditions.

An area of low barometer existed in the Mississippi and Missouri Valleys on the 20th, 21st, and 22d of May, which moved very slowly northward. This induced a southerly current, abnormally warm for the season, over a large portion of the interior of the continent. The result was a series of violent local storms, or spasmodic atmospheric convulsions, along the whole southern declivity of low barometer. These storms were generally accompanied by hail, and always by lightning. They reached a climax in the tornado, which is the subject of this paper, and in that which simultaneously devastated a portion of Kansas. The circumstances under which these terrible meteors arise are, therefore, easy of comprehension. They are the same as those which produce the beneficent thunder-shower, only they exist in greater intensity. The warm southern current, drawn toward the center of low barometer, passes under much colder and heavier air. So long as the greater specific gravity of a given volume of the upper stratum of air, which is due to a lower temperature, is balanced in the lower stratum by the greater density, consequent upon greater pressure of the same volume of air, so long may the atmosphere remain in a state of unstable equilibrum. Any disturbing cause may, however, destroy this state of unstable equilibrum, because the moment the pressure upon the underlying warm air becomes equal to that upon the upper stratum, it becomes the less dense, and, therefore, specifically lighter. Consequently, as soon as an opening is broken through the upper strata, the state of unstable equilibrum is immediately destroyed, and a powerful ascending current formed. It is manifest that the state of unstable equilibrium may continue until the density arising from the lower temperature exceeds that arising from the greater pressure. The moment this occurs, the unstable equilibrium is destroyed. The nearer the atmosphere approaches to this condition, the more intense will be the consequent convulsion. It seems probable that in the case of tornadoes this total destruction of equilibrium is a frequent, if not a constant, accompaniment.

The electrical phenomena.

On this subject there is a general harmony among the witnesses. In the lofty centrifugal cloud there was incessant thunder and lightning; but very little, if any at all, in the centripetal cloud and the funnel. One object, a tree, was struck in the path of the storm; but the discharge took place a half hour before the arrival of the funnel. The lightning-rod said to have been melted on Widow Dogget's barn might have been struck long before, and only noticed then because it was blown down.

There was no evidence of electrical action upon the trees, which were peeled and shivered by the storm, although there was that broom appearance where the trees were broken, which has been referred to the action of electricity. This, however, was clearly due to the straining of the tree before it broke.

No one saw any objects tipped with electrical light during the progress of the storm. The telegraph was not interrupted until the wind blew down the wires.

The electrical phenomena must, therefore, be regarded as merely secondary, as the result of the very rapid condensation of the vapor of water due to atmospheric disturbances arising from other causes.

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Explosion from rarefaction.

It is the generally accepted opinion that in tornadoes houses are frequently burst asunder when the center of the whirlwind comes over them. This is supposed to be accomplished by the great rarefaction, which is said to exist in the center, suddenly relieving the air within the houses of a large portion of atmospheric pressure. The air thus relieved of pressure immediately expands and blows the house asunder as with gunpowder. There was not, so far as I was able to learn, a single case in which a house was so destroyed. The houses were invariably demolished or blown from their foundations by a wind blowing in a certain direction. They were generally pushed or carried a considerable distance bodily, floor and all. After striking the ground with the foremost edge they turn partially over, thus exposing the floor to the wind. The wind being obstructed by the wall of the house resting on the ground became immediately compressed by the pressure from behind. The floor, unable to stand this pressure, went upward, and the whole interior of the building became subjected to a strong pressure due to the compression of the air. This pressure was more than balanced on the side struck by the wind. On the other sides there was nothing to resist it, and the house was accordingly burst asunder. Some of the houses, which were carried forward, evidently reached the center before striking the ground. Traveling with rapidity, they would cross the narrow interval of calm in the eye of the tornado, if such there be, in a small fraction of a second. Being then struck by a contrary wind they were shattered into fragments and dispersed. Such may have been the case with the houses of M. Davidson and Peter Marsh.

Some houses went to pieces the moment the doors and windows were blown in. This takes place by the same kind of explosion as that mentioned above, and which is due to the law that fluids press equally in all directions. If a window is blown in on the windward side of the house, and there is no outlet for the inrushing wind, the whole interior of the house is immediately subjected to a force equal, or nearly so, to that of the wind. Explosion accordingly takes place. In a case of explosion of this kind the floor of the house generally remained, and once at least the windward side of the house had merely fallen forward, when the other sides had left it. We have, therefore, ample proof of explosion by compression, but none whatever of explosion by rarefaction. When the tornado was raging with full fury no house could possibly stand on its foundations until the center came over it. If the tornado was not strong enough to blow down a house before it reached the center, the house remained standing, or was demolished by the winds in the rear of the storm-center.

The belief that at the center of the tornado there exists a rarefaction almost amounting to a vacuum, is the product of the formerly widely entertained theory that tornadoes are mere whirls of wind, generated by some such mechanical agency as the meeting of two opposing currents. According to this theory the low barometric pressure towards the center is the result of the centrifugal force generated by the whirl throwing the air away from the center. Now, that we know that the whirling motion is merely a result impressed upon the winds rushing toward the center of low pressure by secondary causes, our views respecting the amount of rarefaction in the eye of the tornado must undergo a change. Without doubt, the pressure there reaches its minimum, because thither the winds tend. That the progress of the inrushing winds is delayed by centrifugal force is certain, and as soon as the centrifugal force becomes equal to the centripetal the wind will cease to be accelerated toward the center. At that point they will ascend circling, and losing part of their circular motion by friction will be drawn nearer the center until it becomes the focus of most rapidly ascending winds.

The fact that there were no evidences of the bark of trees having been torn off by the sudden evaporation of the juices of the trees, due to the relief from pressure, has already in the statement of facts been sufficiently insisted upon.

The temperature at the center.

A great many witnesses felt somewhat cold as the storm passed over them. The temperature is easily calculated. We have assumed, from the data, an average temperature of 76° on the surface of the ground, and a relative humidity of 65 per cent. This gives a dew-point of 63° or thereabout. This sudden decrease of 13°, together with the wet, is sufficient to account for the coolness experienced.

The amount of rarefaction necessary to produce this diminution of temperature.

The lowering of the temperature at the center of the tornado is due to the work performed by the air in expanding under diminishing pressure. The amount of this expansion, and consequently of the diminution of pressure, is easily obtained from the equation $\frac{a+t}{a+t_1} = \left(\frac{v_1}{v}\right)^{\kappa-1}$, (Zeuner's Grundzüge, p. 131,) where a = co-efficient of expansion = 491, t = initial temperature − 32, t_1 = final temperature − 32, v = initial

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volume, r_1 = final volume, and x = the relation between the thermal capacities of the air with constant volume and with constant pressure = 1.41. The initial temperature in the case of the tornado = 76°, and the final temperature 63°. Consequently, $t = 76 - 32 = 44$, and $t_1 = 63 - 32 = 31$. Let us take $r = 1$. Then $\frac{491+44}{491+31} = \left(\frac{r_1}{1}\right)^{1.41-1}$, or $\frac{535}{522} = r_1^{.41}$, $r_1 = \left(\frac{535}{522}\right)^{\frac{1}{.41}} = 1.8219$. A cubic foot of air, therefore, expands in passing from the circumference to the center to 1.8219 cubic feet. But the pressure is inversely as the volume. Therefore, since the initial pressure was 28.5, $\frac{1 \times 28.5}{1.8219}$ = the pressure when the dew-point is reached and the funnel commences, = 15.69 inches. This gives a diminution of 12.81 inches, corresponding to a pressure of about 6.40 pounds per square inch, or 922 pounds per square foot, an amount of potential energy more than sufficient to account for all the phenomena.

The form and dimensions of the visible funnel did not, therefore, depend upon the diminution of pressure alone, but also upon the temperature and relative humidity of the inrushing winds. Its presence accordingly does not indicate a certain invariable velocity of the wind. When the air is moist, as it always is over the sea, a very small diminution of pressure, and consequently a comparatively light wind, would suffice to develop the phenomenon of a visible funnel. When, on the contrary, the air is very dry, winds of the utmost possible violence could be produced without a visible funnel. The funnel of dark cloud, therefore, by no means indicates the limits of the ascending current. This renders the explanation of the hovering up and down of the lower end of the funnel easy of comprehension. Varying humidity along the path of the tornado would be sufficient to produce this phenomenon.

As the air ascends the pressure diminishes, and the funnel consequently increases in width. The diminution of pressure perpendicularly is symmetrical, and the result is the symmetry of the form of the funnel.

Did the tornado carry up water? Beyond a doubt; but just as it carried up any other body. Water, readily separating into small portions under the action of the wind, would be much more likely to reach the summit of the cloud than particles of solid matter, however fine. It is a common belief, not merely among the many but among men of science, that evaporation takes place rapidly within the vortex of the tornado or water-spout. The fact that the dark funnel is merely a cloud formed by the condensation of the vapor of air, the temperature of which has fallen below the dew-point, is sufficient to show the impossibility of this. Water, therefore, does not add to the power of the tornado. It passes up as a liquid and comes down as a liquid or solid. Even if it were evaporated by the tornado it would require precisely the same amount of heat to evaporate it as it would give forth upon being again condensed.

The sound.

Its loudness was extreme, yet of such a nature as to drown all other sounds without stunning. A man could stand by his house, as it was shivered to pieces, and not hear the noise of its breaking. Many likened it to heavy railroad-trains. To a few it appeared like the hum and whir of innumerable machinery. To others it resembled the roaring of the ocean, along a rocky shore, in a storm. To the soldier it recalled the rolling thunder of the battle-field. Those who were nearest to it were not aware of its terrific loudness.

B. Whitaker heard it, together with others, at the distance of sixty miles. He says that even at that distance it indicated great force. Doubtless it was heard much farther, but excited no attention, being attributed to some other cause. The barometric gradient inclined from Mr. Whitaker to the tornado, consequently the propagation of the sound received no help from the wind. Thunder has very seldom been heard at a greater distance than ten miles. The sound of the tornado was therefore six times louder than the loudest thunder. Heavy cannonading has been heard, it is said, at the distance of ninety miles, and "the report of a volcano at St. Vincent was heard at Demerara, three hundred miles off." The voice of the tornado is, therefore, one of the strongest known to art or nature.

The distances to which bodies were carried.

Leaves fell at Keota and Prairie City which must have been carried four miles. Shutters were carried three miles. A tire of a wagon-wheel was carried two miles. A pig was carried one and one-fourth miles. Doubtless many heavy bodies were carried much farther than any of these instances. Wagons and pigs, &c., disappeared, and the owners could find no trace of them. Only the ruins which were carried the shortest distance were recognized. There is no evidence, however, of anything heavier than

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leaves and mud having traveled farther than a mile from the vortex. They were carried along with it, it may be, for ten miles. This proves that these bodies either never reached so high as the centrifugal cloud, or, if they did so, were carried again into the vortex before reaching the ground. Hail fell at Sigourney, four miles from the center, containing fragments of grass and leaves, and particles of mud. These, therefore, were carried up into the centrifugal cloud, and were probably scattered over the whole region visited by the rain and hail storm.

Why the hail generally preceded the rain.

A drop of rain of the largest dimensions, falling through air of an average pressure cannot exceed a velocity of 34 feet per second. A hail, however, weighing ½ pound and measuring 4 inches in diameter can acquire a much greater velocity. The area of a circle 4 inches in diameter is 12.566 inches, or say 12½ inches. Before the motion of the hail ceases to be accelerated the air must oppose it with a resistance equal to its weight. A spherical surface experiences theoretically in its passage through the air only half that opposed to a plain surface. The roughness of the hail would considerably increase the retardation; but this would probably be more than counterbalanced by the fact that all of the hail were, more or less, flattened and cake-shaped, thus allowing the hail to assume in falling a position of least resistance. Hence, the air must oppose the hail with a pressure of $\frac{144}{12\frac{1}{2}} = 11.5$ pounds per square foot before its motion ceases to be accelerated. This corresponds to a velocity of forty-eight miles per hour, or 70.4 feet per second. Since the resistance of the air is directly as the density, the velocity possible to be attained would be doubled at the height of three or four miles. We thus perceive that the hail, although perhaps formed at a greater elevation than the rain, can yet, when large, reach the ground before it.

The enormous height from which the hail fell, and the vast thickness of the cloud, does away with the difficulty which many have experienced of conceiving how hail can be sustained a sufficient length of time in the air to allow it to grow to such large proportions.

The light which the tornado throws upon the higher currents of the atmosphere is valuable. At a height of from ten to fifteen miles, there was in Iowa a rapid current to the northeast.

The predominance of winds blowing parallel to the path of the tornado.

The width of the destruction on the right of the center of the storm-path was, we have seen, always greater than that on the left. Another fact of the same significance is that the tornado, when it first commences its destructive career, and when the black funnel hovers over the surface of the ground without touching it, manifests itself as a wind blowing in the line of the storm. The reason is evident. The winds blowing in spirals toward the center had, in addition to a motion along the spirals, a motion as constituent parts of the storm in the direction of its path and at the rate of thirty miles per hour. This increased the velocity of the winds on the right of the center, and diminished that of those on the left of it. The general barometric gradient being inclined from south to north, tended also to increase the velocity of the southerly winds and diminish that of the northerly.

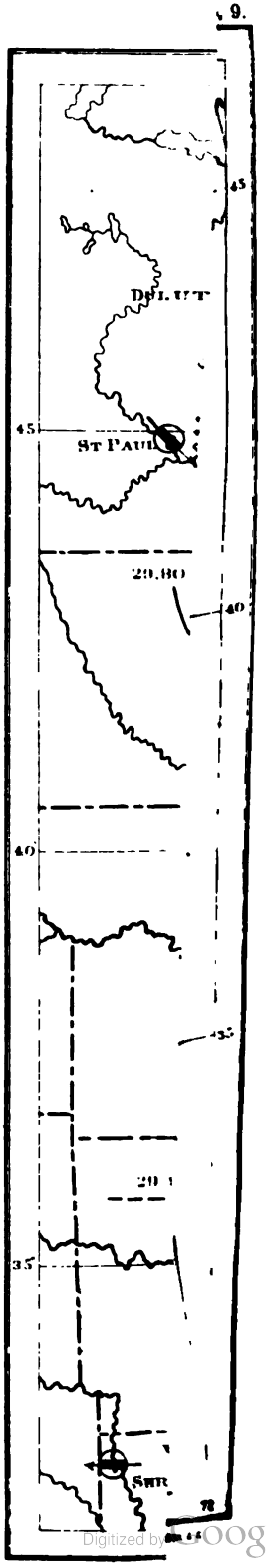
The tornado in Illinois.

The general appearance of the tornado, as a whole, in Illinois, was somewhat different from that which it presented in Iowa. The ascending column of air was no longer on one side of the centrifugal cloud, but apparently near its center. Hence the witnesses generally describe the cloud, as it approached, as consisting of a dark cloud to the northwest, a less dark to the southwest, and a clearer space between. Mr. Roe saw what he conceived to be three streaks of rain, when the tornado was yet miles from him, with clearer spaces between them. My own conception is that the rain fell so densely on both sides of the whirl as to be perfectly black, and the clearer portion, through which some of the witnesses saw the sky, was directly under the whirling cloud, and before the funnel reached to the earth. Mr. Roe, I believe, saw the two descending sheets of rain and the funnel, now reaching to the earth, extending down between them, with clearer intervals on either side. The fact that the cloud now extended on both sides of the funnel, and that the sun was bending toward the western horizon, from which the storm was approaching, rendered accurate observation very difficult. Hence comparatively few persons saw the funnel distinctly. Hence the disagreement of the witnesses as to the direction of revolution. In Iowa all circumstances had combined in order to render precise observation easy. In Illinois the very reverse was the case. I shall, therefore, treat this portion of the subject in a few general remarks.

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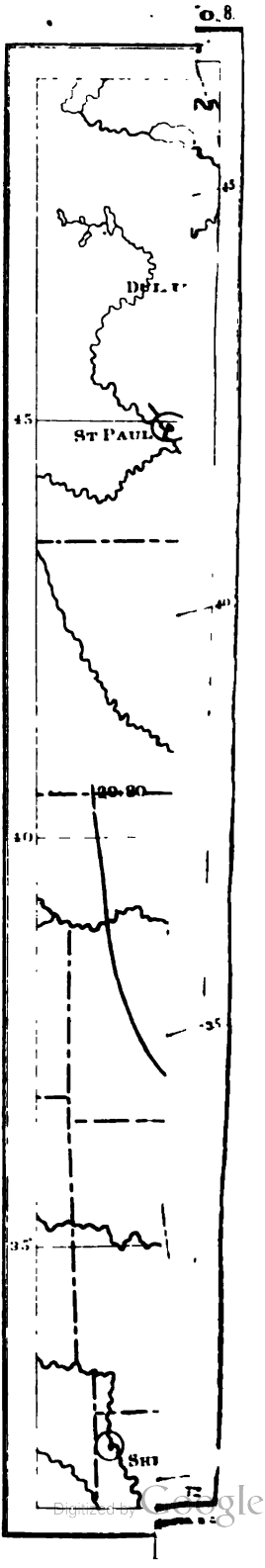
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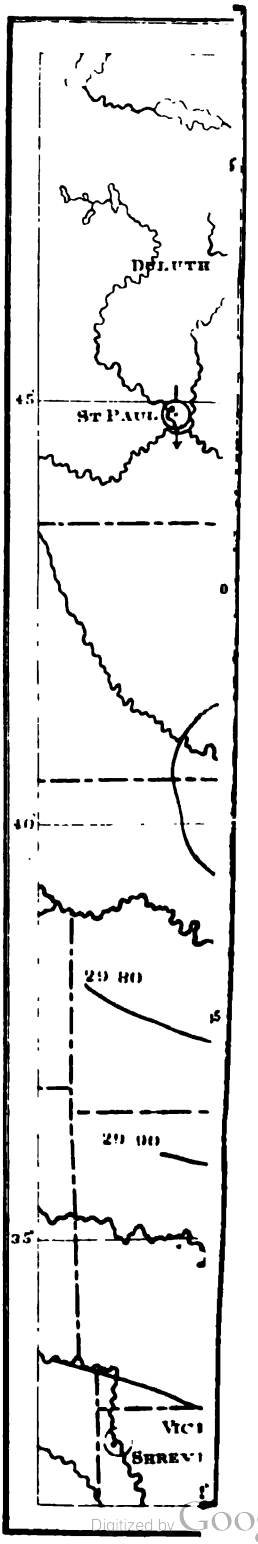


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St Paul
45
40
30
35
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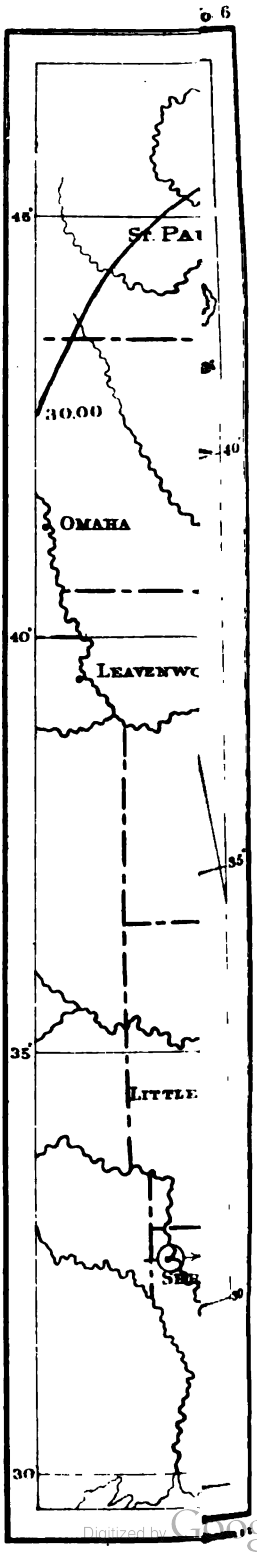


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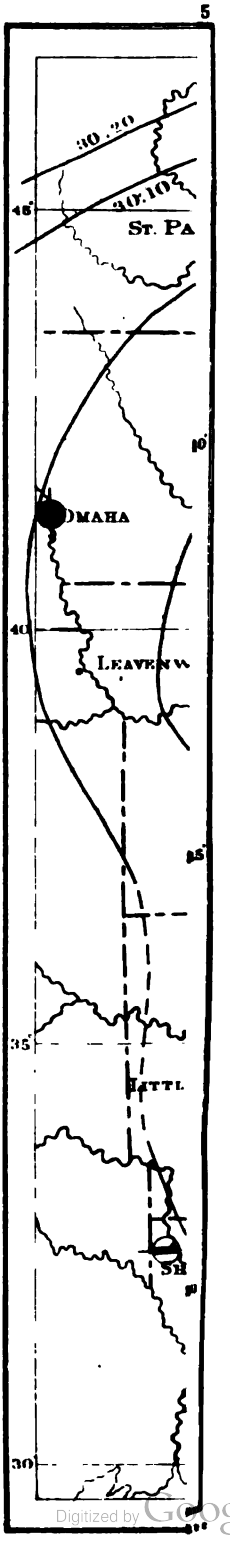
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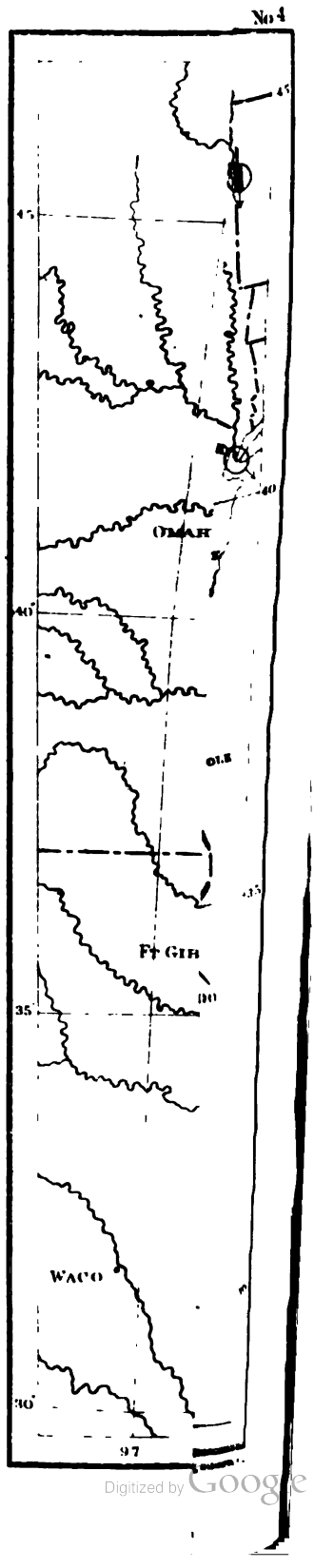
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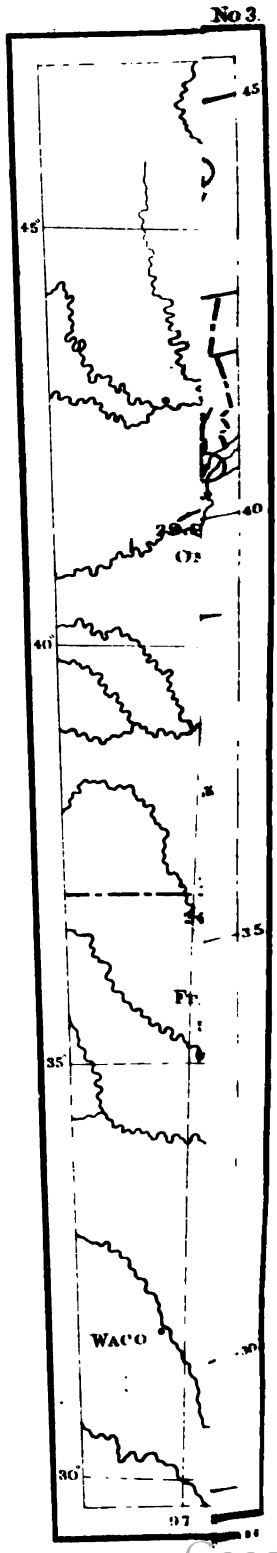
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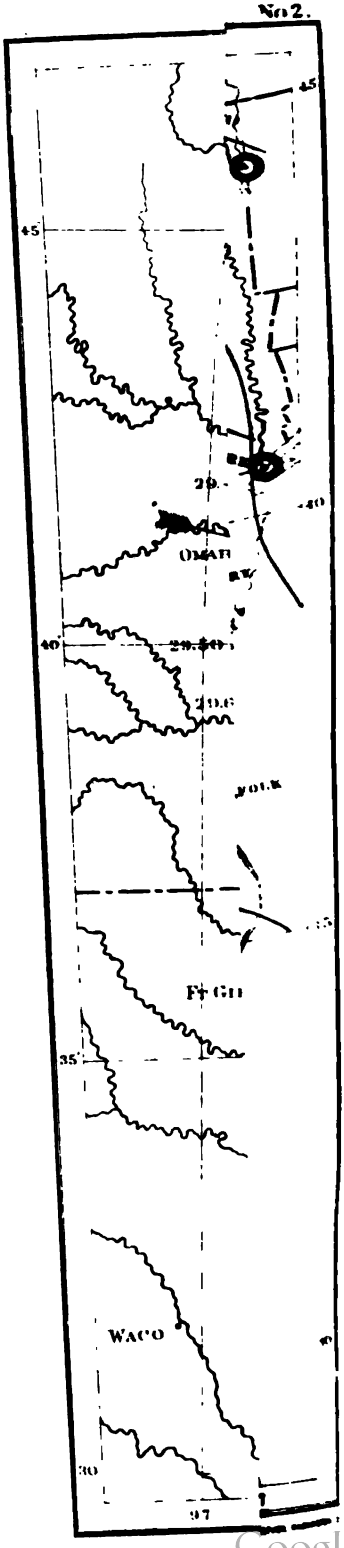
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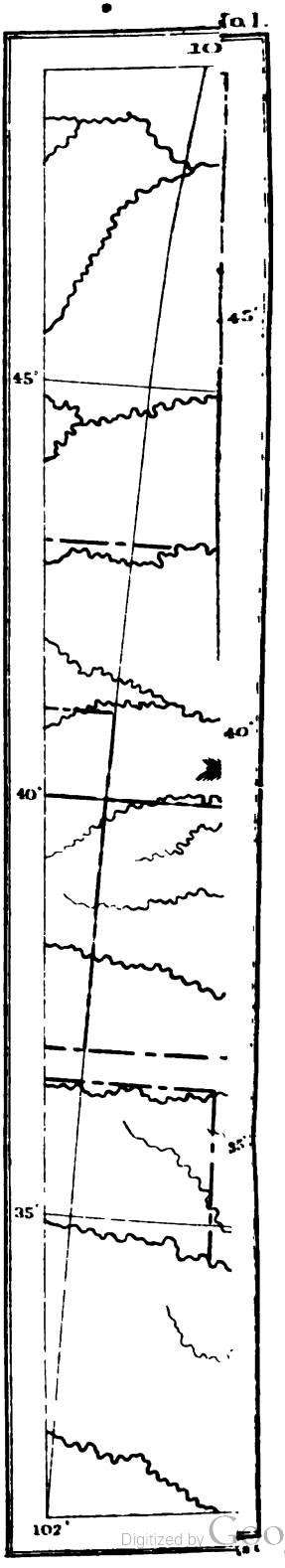


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ɔrnado developed energy in this State quite as great as that displayed in Iowa. tion of revolution was the same. The disposition of the ruins was precisely It showed the same, and even a greater, partiality for water-courses, turning from its course in order to follow them. Its direction varied between north- southeast, and was in the main easterly. At the moment when its velocity ed, and before reaching Spoon River, it poured down, close to the whirlwind, on its very path, a perfect cataract of water. The height of the cloud must ɔn very great, for it was seen in the west for hours previous to its advent. ıs less hail, and the sound was not so generally noticed as in Iowa.

The identity of the tornado in Iowa with that in Illinois.

ost track of, the Iowa tornado was close upon the Iowa River, and traveling theast. Its general course had, however, been easterly. A very severe rain- sed over the district between its point of disappearance and the Mississippi rains were delayed by it and bridges washed away. On the Mississippi itself age was done to shipping by a violent gust of wind, which accompanied the Monmouth there was a severe thunder-storm. Twenty miles to the south of ado again struck the ground. It was at Youngstown at 5.45 p. m., or thereby. IcKee's house, north of Washington, Iowa, to Youngstown, is a distance of y-three miles in a straight line. The tornado was at McKee's house at 3.10 e difference between 5.45 and 3.10 is 2.35. The discrepancy due to is four minutes, very nearly. The time, therefore, consumed by the storm g from opposite Washington, Iowa, to Youngstown, Ill., was 2 hours 31 r $2\frac{1}{2}$ hours; $63 \div 2\frac{1}{2} = 25\frac{1}{2}$, which is, therefore, the velocity of the storm, in ıour, in a straight line. The length of the journey was materially increased ıkedness of the path. This brings the velocity nearly up to that with which traversed Keokuk and Washington Counties, Iowa. These facts, taken in , irresistibly lead me to the conclusion that the tornadoes in the two States l the same.

t where the tornado first struck the ground, on South Skunk River, is situ- 20′ west longitude and 41° 15′ north latitude. It was finally lost track of , in 89° 37′ west longitude and 40° 40′ north latitude. The whole motion ado, therefore, was 2° 43′ east and 35′ south, or one hundred and forty- east and forty-one miles south. The mean direction of its path was 24° d 65° 9′ east, and its whole motion one hundred and forty-nine miles. The of its path renders its actual motion considerably greater.

ɛst thanks are due to Elias Colbert, of the Chicago Tribune, and the editors newspapers at Washington and Sigourney, Iowa, for assistance rendered, lly for publishing an extensive list of questions concerning the tornado, ɛd for me valuable information from persons residing at a distance.

JAS. MACKINTOSH,
Observer, Signal-Service, U. S. A.

PAPER 31.

THE STORM OF APRIL 14-18, 1873.

(With 9 maps.)

ıter that was found to exist in Dakota on the morning of April 13, con- ping itself slowly over Nebraska and Kansas during the afternoon and reatening weather and southeasterly winds in the Upper Mississippi and ys. Breckenridge, Minn., reported heavy snow the following morning, with y winds. The storm now commenced moving eastward toward the lakes, ıary signals, ordered up on the previous day, heralded its advent. a on the afternoon of April 14, it appeared to be moving remarkably slow, ısure was diminishing very rapidly eastward to Lake Erie. After reach- ıe midnight reports of April 15 showed that the storm-center had divided ımber of small but very distinct areas of barometric depressions, extend- to the Alleghanies, with threatening and rainy weather in the Ohio several small storm-centers united again during the following day, ption of one, which moved southeastwardly into the Carolinas. The enter now changed its easterly course to a northeasterly direction, l the lower lakes, but making very little progress; so much so, that the l almost stationary in Southern Michigan for sixteen consecutive hours.

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The small area that had moved into the Carolinas also changed its direction, and appeared as a well-developed storm on the coast of New Jersey on the afternoon of Apr. 17. That area of low barometer which was over Illinois, Southern Michigan, and the Ohio Valley on the 16th, continued over nearly the same portion of country, with special storm-centers in Indiana and Lake Huron, up to the night of the 17th, when it moved northeastwardly to Lake Ontario by the morning of the 18th, where it prevailed as a very large area of low pressure over the entire lake region on the afternoon of the 18th. The midnight reports of this date, however, showed the storm to be confined to the Saint Lawrence Valley, with rain and snow and brisk westerly winds over the lakes. Moving along the Saint Lawrence, it again united over New Brunswick with that portion which had been moving along the Atlantic coast, and then disappeared beyond the limits of our stations. During the six days that this storm had been central in the United States, its frequent changes of direction, its dividing and reuniting have made it, in many respects, one of the most remarkable storms traced by the signal service since its organization. Lake-navigation being still closed, no disasters occurred to shipping, yet its severity was felt in most lake ports, which had, however, been duly warned of its approach.

PAPER 32.

CHRONOLOGICAL LIST OF AURORAS OBSERVED AT THE RESPECTIVE SIGNAL-SERVICE STATIONS FROM NOVEMBER 11, 1870, TO JULY 31, 1873, INCLUSIVE.

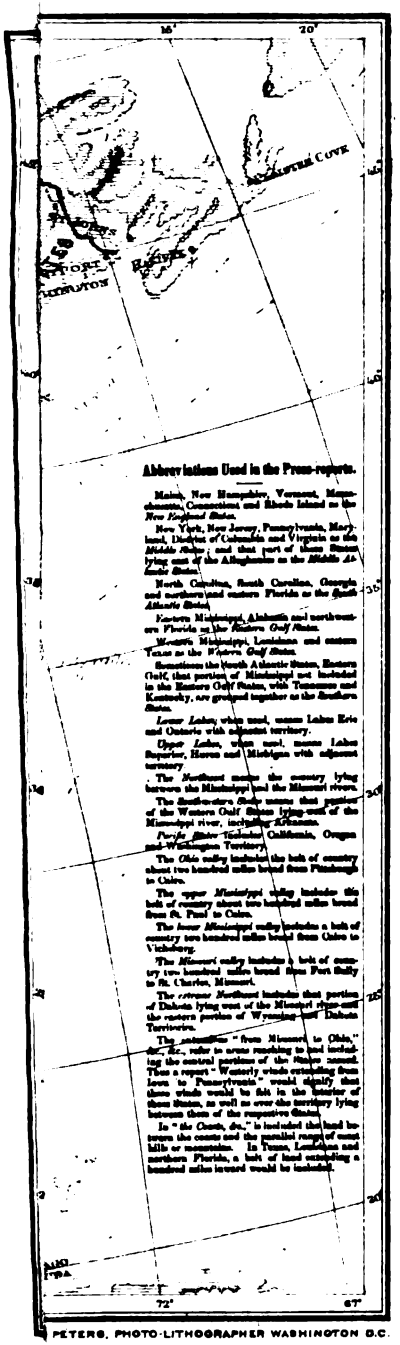
NOTE.—The dates are those of the evening of the night of the aurora, or of the nearest 11 p. m. observation, or according to astronomical reckoning.

† placed *before* the name of a station indicates that the observed light may possibly not have been an aurora.

† placed *after* the name of a station indicates that the date is doubtful, and may be 1 day in error.

1870.					
Nov.	11.	New York.			
	17.	Chicago.			
	18.	Chicago.			
	19.	Chicago.	Rochester.		
Dec.	1.	Milwaukee.			
	17.	Washington.			
1871.					
Jan.	13.	Oswego.	Mt. Washington.		
	19.	Du Luth.	Mt. Washington.		
	31.	New Orleans.			
Feb.	7.	Mt. Washington.			
	9.	Du Luth.			
	10.	Du Luth.	St. Paul.		
	11.	Boston.	Du Luth.	Mt. Washington.	
	12.	Detroit.	Du Luth.	Omaha.	St. Paul.
		Toledo.			
	13.	Du Luth.	St. Paul.	Mt. Washington.	
	14.	Boston.			
	15.	Du Luth.			
	21.	Mt. Washington.	Rochester.		
	24.	Buffalo.	Chicago.	Detroit.	Du Luth.
		Rochester.			
	25.	Chicago.			
	26.	Chicago.			
Mar.	10.	Mt. Washington.			
	17.	Buffalo.	Cheyenne.	Chicago.	Detroit.
		Du Luth.	Cleveland.	Indianapolis.	Toledo.
	18.	Chicago.			
	24.	Chicago.	Oswego.		
	26.	Du Luth.			
	27.	Du Luth.			
	31.	Oswego.			
Apr.	1.	Chicago.	Cleveland.	Detroit.	

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Abbreviations Used in the Press-reports.

Maine, New Hampshire, Vermont, Massachusetts, Connecticut and Rhode Island as the *New England States.*

New York, New Jersey, Pennsylvania, Maryland, District of Columbia and Virginia as the *Middle States*; and that part of these States lying east of the Alleghanies as the *Middle Atlantic States.*

North Carolina, South Carolina, Georgia and northern and eastern Florida as the *South Atlantic States.*

Western Mississippi, Alabama and northwestern Florida as the *Eastern Gulf States.*

Eastern Mississippi, Louisiana and eastern Texas as the *Western Gulf States.*

Sometimes the South Atlantic States, Eastern Gulf, that portion of Mississippi not included in the Eastern Gulf States, with Tennessee and Kentucky, are grouped together as the *Southern States.*

Lower Lakes, when used, means Lakes Erie and Ontario with adjacent territory.

Upper Lakes, when used, means Lakes Superior, Huron and Michigan with adjacent territory.

The *Northwest* means the country lying between the Mississippi and the Missouri rivers.

The *Southwestern States* means that portion of the Western Gulf States lying east of the Mississippi river, including Arkansas.

Pacific States Included California, Oregon and Washington Territory.

The *Ohio valley* includes the belt of country about two hundred miles broad from Pittsburgh to Cairo.

The *upper Mississippi* valley includes the belt of country about two hundred miles broad from St. Paul to Cairo.

The *lower Mississippi* valley includes a belt of country two hundred miles broad from Cairo to Vicksburg.

The *Missouri* valley includes a belt of country two hundred miles broad from Fort Sully to St. Charles, Missouri.

The *extreme Northwest* includes that portion of Dakota lying west of the Missouri river and the western portion of Wyoming and Dakota Territories.

The expressions "from Missouri to Ohio," &c., &c., refer to areas reaching to and including the central portions of the States named. Thus a report "Westerly winds extending from Iowa to Pennsylvania" would signify that these winds would be felt in the interior of these States, as well as over the territory lying between them of the respective States.

In "the Ozarks, &c." is included the land between the coasts and the parallel range of coast hills or mountains. In Texas, Louisiana and northern Florida, a belt of land extending a hundred miles inward would be included.

PETERS, PHOTO-LITHOGRAPHER WASHINGTON D.C.

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pr. 9.	Chicago.	Cleveland.	Detroit.	Du Luth.
	Indianapolis.	Oswego.	Rochester.	Toledo.
	Wilmington.			
13.	Boston.	Buffalo.	Chicago.	Cleveland.
	Detroit.	Du Luth.	Indianapolis.	New London.
	Oswego.	Portland, Me.	Rochester.	St. Paul.
14.	Detroit.	Oswego.	Portland, Me.	
16.	Buffalo.			
17.	Boston.	Baltimore.	Buffalo.	Memphis.
	Omaha.	Oswego.	Rochester.	
20.	Rochester.			
23.	Boston.	Mt. Washington.	New London.	Oswego.
	Rochester.	Toledo.		
28.	Oswego.	Rochester.		
ay 8.	Boston.	Chicago.	Cleveland.	Du Luth.
	Milwaukee.	New London.	St. Paul.	
9.	New London.	St. Paul.		
10.	Boston.	Buffalo.	Marquette.	New London.
	Oswego.	St. Paul.		
12.	Boston.	Buffalo.	Mt. Washington.	
13.	Buffalo.			
14.	Buffalo.			
16.	Du Luth.			
17.	San Francisco.			
19.	Chicago.			
20.	Oswego.			
21.	Oswego.	Portland, Me.		
22.	Buffalo.	Chicago.	Cleveland.	Detroit.
	Marquette.	Toledo.		
23.	Rochester.	Toledo.		
24.	Burlington.			
25.	Mt. Washington.			
26.	Boston.	Du Luth.	Mt. Washington.	
27.	Oswego.			
une 1.	Marquette.			
2.	Marquette.			
3.	Davenport.			
6.	Chicago.	Du Luth.	Grand Haven.	Milwaukee.
7.	Chicago.	Detroit.	Du Luth.	Grand Haven.
8.	Rochester.			
9.	Rochester.			
10.	Boston.	Cape May.	Chicago.	Cheyenne.
	Detroit.	Du Luth.	Grand Haven.	Marquette.
	Milwaukee.	New York.	Oswego.	St. Paul.
11.	Davenport.	Detroit.		
12.	Boston.			
14.	Boston.	Mt. Washington.		
17.	Davenport.	Du Luth.	Indianapolis.	Leavenworth.
	Marquette.	Mt. Washington.	St. Louis.	St. Paul.
18.	Cleveland.	Du Luth.	Indianapolis.	Toledo.
	Washington.	Wilmington.		
20.	Grand Haven.	Oswego.		
21.	Boston.	Burlington.	Du Luth.	Portland, Me.
23.	Boston.	Burlington.	Du Luth.	Marquette.
25.	Burlington.	Du Luth.	Marquette.	Oswego.
30.	Davenport.			
uly 2.	Du Luth.	Grand Haven.		
4.	Milwaukee.	Toledo.		
5.	Portland, Me.			
6.	Detroit.			
11.	St. John's.			
12.	Boston.	Marquette.		
13.	Davenport.			
14.	Boston.	Burlington.	Chicago.	Davenport.
	Detroit.	Du Luth.	Escanaba.	Grand Haven.
	Indianapolis.	Marquette.	Mt. Washington.	Oswego.
	St. Paul.			
15.	Chicago.	Toledo.		
20.	Davenport.	Du Luth.	Grand Haven.	Marquette.
	New York.			

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July	21. Boston.	Chicago.	Cleveland.	Davenport
	Detroit.	Grand Haven.	Marquette.	Rochester.
	St. Paul.			
	22. Boston.	Buffalo.	Chicago.	Grand Haven.
	Du Luth.	Marquette.	Rochester.	
	23. Boston.	Burlington.	Du Luth.	Oswego.
	24. Mt. Washington.			
	25. Fiskenaes.			
	27. Chicago.			
	28. Buffalo.	Davenport.	Detroit.	Rochester.
	30. Oswego.			
	31. Chicago.			
Aug.	5. Burlington.	Davenport.	Du Luth.	Grand Haven.
	Milwaukee.	Toledo.		
	9. Boston.	Burlington.	Du Luth.	Montreal.
	10. Burlington.	Du Luth.	Oswego.	
	11. Chicago.	Du Luth.	Marquette.	
	12. Buffalo.	Chicago.	Du Luth.	Grand Haven.
	Oswego.	Rochester.		
	16. Buffalo.	Chicago.	Cleveland.	Du Luth.
	Oswego.			
	17. Buffalo.	Davenport.	Detroit.	Du Luth.
	Grand Haven.	Oswego.	Rochester.	
	20. Du Luth.			
	21. Chicago.			
	22. Grand Haven.			
	23. Chicago.	Marquette.	St. Paul.	
	24. Burlington.	Chicago.	Du Luth.	Grand Haven.
	Milwaukee.	St. Paul.		
	25. Marquette.	Montreal.		
	30. Davenport.			
Sept.	4. Chicago.			
	5. Chicago.			
	6. Du Luth.	St. Paul.		
	7. Boston.	Burlington.	Cleveland.	Milwaukee.
	Oswego.	Rochester.	Portland, Me.	St. Paul.
	Toledo.			
	8. Burlington.	Buffalo.	Mt. Washington.	Milwaukee.
	Oswego.			
	11. Du Luth.			
	14. Toledo.			
	18. Cleveland.			
	19. Milwaukee.	St. Paul.		
	20. Du Luth.			
	22. Du Luth.			
	26. Cleveland.			
	27. Cleveland.			
Oct.	16. Toledo.			
	18. Marquette.			
	24. Mt. Washington.			
Nov.	1. Cape May.			
	2. Buffalo.	Grand Haven.	Portland, Me.	
	4. Portland, Me.			
	9. Boston.	Buffalo.	Cape May.	Charleston.
	Cheyenne.	Corinne.	Indianapolis.	Knoxville.
	Louisville.	Montreal.	New London.	New York.
	Oswego.	Portland, Me.	Rochester.	Vicksburgh.
	10. Du Luth.	Grand Haven.	Indianapolis.	Knoxville.
	Milwaukee.	Toledo.	Washington.	Wilmington.
	11. Baltimore.	Indianapolis.		
	12. Mt. Washington.	Oswego.		
	13. Du Luth.			
	16. Escanaba.			
	19. Oswego.	Savannah.		
Dec.	8. Chicago.	Milwaukee.		
	10. Du Luth.	Toledo.		
	16. Chicago.	Du Luth.	Marquette.	
	19. Rochester.			
	24. Buffalo.			

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	6. Boston.	Cleveland.	Du Luth.	Grand Haven
	Milwaukee.	New York.	Portland, Me.	Toledo.
	7. Buffalo.			
	12. Toledo.			
	13. Du Luth.			
	30. Marquette.			
	31. Chicago.	Mt. Washington.	Oswego.	
	4. Boston.	(Baltimore?)	Cape May.	Charleston.
	Chicago.	Du Luth.	Galveston.	Jacksonville.
	Key West.	Knoxville.	Lake City.	Lynchburgh.
	Marquette.	Mobile.	Milwaukee.	Nashville.
	New York.	Philadelphia.	Portland, Me.	St. Paul.
	(Thank God Harbor, Greenland.)	Virginia City.	Washington.	Wilmington.
	5. Lake City.	Mt. Washington.		
	9. Oswego.			
	12. Lake City.			
	15. Marquette.			
	18. Lake City.			
	19. Chicago.	Oswego.		
	26. Marquette.	Portland, Me.		
	27. Chicago.	Oswego.	Rochester.	
	28. Lake City.			
	29. Lake City.			
ch	1. Buffalo.	Burlington.	Chicago.	Cleveland.
	Detroit.	Du Luth.	Escanaba.	Grand Haven.
	Marquette.	Oswego.	Portland, Me.	Toledo.
	Vicksburgh.			
	6. Toledo.			
	14. Wilmington.			
	26. Oswego.			
	28. Du Luth.	Marquette.		
	29. Portland, Me.			
	31. (Lake City?)			
il	3. Buffalo.	Chicago.	Marquette.	Oswego.
	Rochester.	Toledo.	(Wilmington?)	
	4 Toledo.			
	6. Nashville.			
	9. (Philadelphia?)			
	10. Buffalo.	Breckenridge.	Cape May.	Chicago.
	Cleveland.	Davenport.	Detroit.	Grand Haven.
	Indianapolis.	Leavenworth.	Knoxville.	Marquette.
	New York.	Oswego.	Philadelphia.	Portland, Me.
	Toledo.	Washington.	Wilmington.	
	11. Baltimore.	Oswego.	Portland, Me.	
	14. Buffalo.	Oswego.	Rochester.	
	15. Chicago.	Marquette.	Toledo.	
	17. Baltimore.	Du Luth.	Marquette.	Oswego.
	Rochester.			
	18. Portland, Me.			
	23. Baltimore.			
	26. Marquette.			
	27. New York.			
ay	3. Mt. Washington.			
	5. Nashville.			
	7. Portland, Me.			
	9. Chicago.	Oswego.	Rochester.	Toledo.
	12. Rochester.			
	13. Chicago.			
	24. Chicago.	Du Luth.	Milwaukee.	Marquette.
	Oswego.			
	25. Oswego.	Rochester.		
	26. New York.	Rochester.		
	27. Detroit.	Marquette.	Nashville.	
	28. Marquette.	Nashville.	Oswego.	Rochester.
June	1. Rochester.			
	2. Du Luth.	Rochester.		
	5. (Rochester?)			
	6. (Du Luth?)			

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June	9. St. Paul.			
	10. Chicago.	Du Luth.	Indianapolis.	Toledo.
	11. Chicago.	Portland, Oreg.	St. Paul.	
	12. Oswego.			
	13. Chicago.			
	15. Marquette.	Oswego.		
	28. (Rochester ?)			
July	3. Chicago.			
	6. Nashville.			
	7. Chicago.	Indianapolis.	Oswego.	Portland, Oreg.
	8. Boston.	Burlington.	Breckenridge.	Chicago.
	Davenport.	Detroit.	Du Luth.	Indianapolis.
	Louisville.	Marquette.	New York.	Oswego.
	Philadelphia.	Rochester.	Toledo.	
	10. Chicago.	St. Paul.		
	18. Chicago.			
	20. Du Luth.			
	24. Cleveland.			
	25. Cleveland.			
	27. Boston.	Buffalo.	Chicago.	Cleveland.
	Du Luth.	Oswego.	Toledo.	
	28. Buffalo.	Cleveland.		
Aug.	2. Davenport.			
	3. Baltimore.	Buffalo.	Chicago.	Cincinnati.
	Cleveland.	Davenport.	Detroit.	Grand Haven.
	Indianapolis.	Knoxville.	Louisville.	Marquette.
	Milwaukee.	Nashville.	New York.	Norfolk.
	Oswego.	Philadelphia.	Pittsburgh.	Rochester.
	Washington.	Wilmington.		
	4. Toledo.	Boston.	Breckenridge.	Buffalo.
	Baltimore.	Cleveland.	Detroit.	Ft. Sully.
	Burlington.	Rochester.	St. Paul.	
	5. (Cleveland ?)	Davenport.	Marquette.	St. Paul.
	Oswego.			
	7. Augusta.			
	8. Augusta.	Baltimore.	Boston.	Buffalo.
	8. Burlington.	Cape May.	Chicago.	Cincinnati.
	Cleveland.	Corinne.	Cheyenne.	Davenport.
	Detroit.	Grand Haven.	Indianapolis.	Knoxville.
	Leavenworth.	Louisville.	Milwaukee.	Memphis.
	Mt. Washington.	Nashville.	New London.	Norfolk.
	New York.	Omaha.	Oswego.	Pittsburgh.
	Philadelphia.	Portland, Me.	Rochester.	Toledo.
	Washington.	Wilmington.		
	9. Augusta.	Cleveland.	St. Louis.	
	10. Omaha.	Virginia City.		
	13. (Burlington ?)			
	14. Buffalo.	Breckenridge.	Cairo.	Chicago.
	Cleveland.	Corinne.	Davenport.	Denver.
	Detroit.	Du Luth.	Ft. Sully.	Grand Haven.
	Indianapolis.	Leavenworth.	Milwaukee.	Marquette.
	New London.	Norfolk.	Oswego.	Pittsburgh.
	Rochester.	St. Louis.	St. Paul.	Toledo.
	Washington.	Wilmington.		
	18. New York.			
	21. Rochester.			
	24. Ft. Sulley.	St. Paul.		
	25. Boston.	Buffalo.	Cape May.	Cleveland.
	Detroit.	Du Luth.	Grand Haven.	Norfolk.
	Rochester.	Toledo.		
	26. Du Luth.	Marquette.		
	29. Breckenridge.	Cleveland.	Detroit.	Du Luth.
	Escanaba.	Ft. Sully.	Marquette.	St. Paul.
	Toledo.			
Sept.	2. Toledo.			
	4. Breckenridge.	Chicago.	Ft. Sully.	Marquette.
	St. Paul.	Washington.		
	5. Mt. Washington.			
	6. Marquette.	Rochester.		
	7. Breckenridge.	Du Luth.	Ft. Sully.	Rochester.

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3. Breckenridge.	Ft. Sully.		
9. Boston.	Portland, Me.	Rochester.	
4. Breckenridge.	Cincinnati.		
6. Breckenridge.			
7. Alpena.	Buffalo.	St. Paul.	
8. Cleveland.			
28. Breckenridge.	Boston.	Ft. Sully.	Philadelphia.
Rochester.			
29. Breckenridge.	Du Luth.	Rochester.	
30. Breckenridge.	Du Luth.	Marquette.	
1. Buffalo.	Davenport.	Detroit.	Du Luth.
St. Paul's Island.			
2. Ft. Sully.	Portland, Me.		
3. Alpena.	Du Luth.	Escanaba.	Marquette.
Milwaukee.	Rochester.	St. Paul's Island.	
4. St. Paul's Island.			
5. Alpena.	Breckenridge.	Burlington.	Du Luth.
Ft. Sully.	Oswego.	Rochester.	St. Paul.
Toledo.			
6. Marquette.	St. Paul.		
8. Cairo.			
9. Cairo.	St. Paul's Island.		
12. Mt. Washington.	New York.		
13. Knoxville.			
14. Augusta.	Baltimore.	Boston.	Cape May.
Charleston.	Chicago.	Corinne.	Davenport.
Denver.	Detroit.	Ft. Sully.	Indianapolis.
Jacksonville.	Lake City.	Montgomery.	Nashville.
Norfolk.	Philadelphia.	Portland, Me.	Rochester.
Savannah.	Toledo.	Washington.	Wilmington.
15. Escanaba.	La Crosse.	St. Paul.	St. Paul's Island.
16. Portland, Me.	Rochester.	St. Paul.	Wilmington.
17. Breckenridge.	Cheyenne.	Chicago.	Ft. Benton.
La Crosse.	St. Paul.	Toledo.	
18. Chicago.			
25. La Crosse.			
28. Alpena	Burlington.	Detroit.	Escanaba.
Marquette.	Milwaukee.	Mt. Washington.	Oswego.
Portland, Me.	Rochester.		
29. Alpena.	Boston.	Davenport.	Escanaba.
Geneva.	Marquette	Mt. Washington.	Portland, Me.
Toledo.	Washington.		
30. Alpena.	Ft. Sully.	Geneva, N. Y.	
r. 1. Baltimore.	Boston.	Geneva, N. Y.	Philadelphia.
4. St. Paul's Island.			
6. Alpena.	Breckenridge.	Escanaba.	Pembina.
8. New York.			
10. Baltimore.	Boston.	Breckenridge.	Burlington.
Davenport.	Ft. Benton.	La Crosse.	Leavenworth
Pembina.	Portland, Me.	Washington.	
17. St. Paul's Island.			
20. Washington.			
23. Fort Benton.	La Crosse.	St. Paul's Island.	
24. Fort Sully.	La Crosse.	St. Paul's Island.	
25. Alpena.			
26. Breckenridge.	Pembina.	St. Paul's Island.	
27. Alpena.	Burlington.	Pembina.	Portland, Me.
St. Paul's Island.			
28. Rochester.			
29. Jacksonville.	Pembina.		
30. St. Paul's Island.			
ec. 1 Pembina.	St. Paul's Island		
2. St. Paul's Island.			
3. La Crosse.			
10. (St. Paul's Island ?)			
17. Alpena.			
20. Pembina.			
21. Pembina.			
22. Pembina.			

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Dec.	23. Alpena.	Breckenridge.	Buffalo.	Du Luth.
	Pembina.			
	24. St. Paul's Island.			
	25. Breckenridge.	Pembina.	St. Paul's Island.	
	26. Pembina.	St. Paul's Island.		
	27. Du Luth.	La Crosse.	Marquette.	
	29. Alpena.	Portland, Me.		
	30. Pembina.	St. Paul's Island.		
	31. Alpena.	Burlington.	Du Luth.	Mt. Washington.
	Portland, Me.			
1873.				
Jan.	3. Breckenridge.	Mt. Washington.		
	5. Du Luth.	Ft. Sully.	(Washington ?)	
	6. Ft. Sully.			
	7. Boston.	Burlington.	Cape May.	Davenport.
	Ft. Sully.	Geneva.	Knoxville.	Lexington.
	Mt. Washington.	New Haven.	New London.	Oswego.
	Philadelphia.	Portland, Me.	Rochester.	Washington.
	8. Burlington.			
	9. (Milwaukee ?)	(Vicksburgh ?)		
	12. St. Paul's Island.			
	18. Alpena.	Breckenridge.	Escanaba.	La Crosse.
	Marquette.	Milwaukee.	St. Paul's Island.	
	19. (Ft. Benton ?)			
	20. (Ft. Sully ?)	St. Paul's Island.		
	21. Pembina.			
	23. St. Paul's Island.			
	24. Vicksburgh.			
	25. Alpena.	Milwaukee.		
	26. Du Luth.	St. Paul's Island.		
	27. St. Paul's Island.			
	28. Alpena.	Breckenridge.	Du Luth.	Escanaba.
	Marquette.			
	29. Ft. Sully.			
Feb.	1. Alpena.	Breckenridge.	Buffalo.	Burlington
	Du Luth.	Escanaba.	Ft. Sully.	La Crosse.
	Marquette.	Milwaukee.	Mt. Washington.	St. Paul.
	2. Alpena.	Boston.	Buffalo.	Marquette.
	Mt. Washington.	New Haven.		
	5. Ft. Sully.			
	16. Alpena.			
	19. Alpena.	Escanaba.		
	20. Breckenridge.	Buffalo.	Du Luth.	New Haven
	Pembina.	St. Paul's Island.		
	21. Alpena.	Breckenridge.	Buffalo.	Du Luth.
	Escanaba.	Ft. Sully.	Geneva.	La Crosse.
	Milwaukee.	New Haven.	Pembina.	Rochester.
	St. Paul.			
	22. Alpena.	La Crosse.	New Haven.	San Diego.
	St. Paul's Island.			
	23. Alpena.	Breckenridge.	Du Luth.	Ft. Sully.
	La Crosse.	Milwaukee.	Pembina.	St. Paul.
	24. Ft. Sully.	Pembina.		
	25. New Haven.			
	26. Boston.	Burlington.	St. Paul's Island.	
Mar.	1. Boston.	Burlington.	Ft. Benton.	Ft. Sully.
	2. Du Luth.	Ft. Sully.	La Crosse.	Pembina.
	St. Paul.			
	3. Alpena.	Du Luth.	Marquette.	Pembina.
	6. Portland, Me.			
	8. Breckenridge.	Grand Haven.	Pembina.	
	9. Alpena.	Burlington.	Mt. Washington.	
	New Haven.	Omaha.		
	10. Boston.	Burlington.	Mt. Washington.	New Haven.
	13. New Haven.			
	16. Alpena.	Buffalo.		
	18. Ft. Sully.	St. Paul's Island.		
	20. (Omaha ?)			
	21. Alpena.	Du Luth.	Ft. Sully.	La Crosse.
	Marquette.	Milwaukee.	Wood's Hole.	

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Alpena.	Brockenridge.	Buffalo.	Du Luth.
Ft. Sully.	Geneva.	La Crosse.	Oswego.
Pembina.	Rochester.	Washington.	Wood's Hole.
Alpena.	Boston.	Buffalo.	Marquette.
(Omaha?)	Pembina.	St. Paul's Island.	
. New Haven.	Pembina.		
. La Crosse.	Marquette.	Pembina.	
. Alpena.	Escanaba.	Marquette.	
. Alpena.			
. Alpena.	Ft. Sully.	La Crosse.	
. Boston.	(Breckenridge?)	Ft. Sully.	Mt. Washington.
(New Haven?)	Portland, Me.	Rochester.	
. Pembina.			
. Geneva.	Oswego.	Rochester.	
. New Haven.			
. Omaha.			
. Pembina.			
. Alpena.	New Haven.		
. (Breckenridge?)	Du Luth.	Escanaba.	Ft. Sully.
La Crosse.	Pembina.	St. Paul.	
9. Alpena.	Boston.	Du Luth.	Escanaba.
Ft. Benton.	Ft. Sully.	St. Paul.	
0. Alpena.	Boston.	Du Luth.	Escanaba.
Ft. Benton.	La Crosse.	New Haven.	Pembina.
St. Paul.			
1. Alpena.	Escanaba.	La Crosse.	New Haven.
Pembina.	St. Paul.		
22. St. Paul.			
23. Boston.	Pembina.	St. Paul's Island.	
24. Buffalo.	New Haven.		
25. Alpena.	Breckenridge.	Fort Sully.	Geneva.
Marquette.	Pembina.	Rochester.	
26. Alpena.	Fort Sully.	Marquette.	Pembina.
27. Alpena.	Fort Benton.	Marquette.	St. Paul's Island.
28. Alpena.	La Crosse.	Pembina.	
29. Fort Benton.	Marquette.	Pembina.	
30. Alpena.	Du Luth.	Eastport.	Marquette.
Mt. Washington.	Pembina.	Washington.	
2. Buffalo.			
7. Mt. Washington.			
13. Alpena.			
15. Alpena.	Boston.	Cape May.	Davenport.
Fort Benton.	Grand Haven.	La Crosse.	Marquette.
Mt. Washington.	New Haven.	Portland, Me.	Toledo.
Washington.	Yankton.		
16. Alpena.	Boston.	Fort Benton.	Marquette.
Pembina.			
17. Alpena.	Eastport.	(? Rochester.)	
18. Alpena.			
19. Mt. Washington.	New Haven.		
21. La Crosse.	St. Paul.		
22. Geneva.	La Crosse.	St. Paul.	
23. Buffalo.	Cleveland.	Du Luth.	La Crosse.
Rochester.	Toledo.		
25. Eastport.			
26. La Crosse.			
27. Alpena.			
28. Alpena.	Buffalo.	Cleveland.	Geneva.
La Crosse.	Memphis.	Milwaukee.	New Haven.
(Oswego?)	Pembina.	Toledo.	
29. Alpena.	Du Luth.	La Crosse.	Marquette.
Pembina.			
30. (New Haven?)	St. Paul.		
31. Alpena.	Mt. Washington, Station 1.	Mt. Washington, Station 2.	Mt. Washington, Station 3.
ne 1. Alpena.	Boston.	Buffalo.	Chicago.
Detroit.	Erie.	Ft. Sully.	(? Galveston.)
Milwaukee.	Mt. Washington, Station 1.	Mt. Washington, Station 2.	Mt. Washington, Station 3.

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June	1. Mt. Washington, Station 4.	New Haven.	New London.	Oswego.
	Rochester.	Toledo.	Washington.	
	2. Ft. Benton.	(? Galveston.)	Mt. Washington, Station 1.	Mt. Washington, Station 2.
	Pembina.			
	3. (? Galveston.)	St. Paul.		
	4. (? Galveston.)			
	5. (? Galveston.)			
	6. Galveston.			
	7. Buffalo.	Mt. Washington, Station 2.		
	12. Alpena.	Mt. Washington, Station 3.	New Haven.	
	13. La Crosse.	Mt. Washington, Station 1.	Mt. Washington, Station 2.	St. Paul.
	14. Alpena.	Escanaba.	Ft. Benton.	Grand Haven.
	Marquette.	Mt. Washington, Station 2.		
	15. Du Luth.	La Crosse.	Marquette.	Mt. Washington, Station 3.
	Oswego.	St. Paul.		
	16. Breckenridge.	Du Luth.	Ft. Sully.	Marquette.
	Milwaukee.	Mt. Washington, Station 3.		
	17. Mt. Washington, Station 1.	Mt. Washington, Station 2.	Mt. Washington, Station 3.	
	18. Alpena.	Boston.	Buffalo.	Chicago.
	(Erie?)	Ft. Sully.	Grand Haven.	La Crosse.
	Milwaukee.	Morgantown.	Rochester.	St. Paul.
	Toledo.	Washington.		
	19. Mt. Washington, Station 3.			
	20. Alpena.	Du Luth.	Marquette.	Mt. Washington, Station 2.
	Mt. Washington, Station 4.	Washington.		
	22. Boston.	Mt. Washington, Station 1.	Mt. Washington, Station 2.	
	23. Burlington.	Mt. Washington, Station 1.	Mt. Washington, Station 2.	Mt. Washington, Station 3.
	Pembina.	Portland, Me.		
	24. Boston.	Mt. Washington, Station 1.	Mt. Washington, Station 2.	Mt. Washington, Station 3.
	New Haven.	Oswego.	Portland, Me.	St. Paul.
	25. Breckenridge.	Erie.	Mt. Washington, Station 1.	Mt. Washington, Station 2.
	Mt. Washington, Station 3.	St. Paul.		
	26. Alpena.	Baltimore.	Boston.	Buffalo.
	Burlington.	Cape May.	Chicago.	Cleveland.
	Detroit.	Escanaba.	Grand Haven.	La Crosse.
	Marquette.	Milwaukee.	Morgantown.	Mt. Washington, Station 1.
	Mt. Washington, Station 2.	Mt. Washington, Station 3.	Mt. Washington, Station 4.	New Haven.
	New London.	Oswego.	Pembina.	Portland, Me.
	Rochester.	St. Paul.	Washington.	Wood's Hole
	Yankton.			
	27. Alpena.	Boston.	Du Luth.	Escanaba.
	Marquette.	Milwaukee.	Mt. Washington, Station 2.	New Haven.
	New York.	St. Paul.		
	28. Alpena.	Mt. Washington, Station 1.	Mt. Washington, Station 2.	Pembina.
	29. Boston.	Breckenridge.	Mt. Washington, Station 2.	Omaha.
	Portland, Me.			
	30. Alpena.	Rochester.		
July	1. St. Paul.			
	2. Buffalo.	Erie.	Marquette.	
	4. St. Paul.			
	7. St. Paul.			

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July	9. Du Luth.	Erie.	Mt. Washington,	St. Paul.
	12. Alpena.	Boston.	Buffalo.	Burlington.
	Cleveland.	Detroit.	Oswego.	Rochester.
	13. Alpena.			
	14. Alpena.	Buffalo.	Du Luth.	Marquette.
	Rochester.			
	15. Erie.	Pembina.		
	16. Breckenridge.	Buffalo.	Davenport.	La Crosse.
	Milwaukee.	Pembina.	Rochester.	
	17. Alpena.			
	18. Buffalo.	Grand Haven.	Pembina.	
	19. Pembina.			
	20. Alpena.	Boston.	Breckenridge.	Buffalo.
	Chicago.	Cleveland.	Davenport.	Detroit.
	Du Luth.	Erie.	Escanaba.	Fargo.
	Ft. Sully.	Grand Haven.	La Crosse.	Marquette.
	Milwaukee.	Omaha.	Pembina.	Portland, Me.
	Rochester.	St. Paul.	Toledo.	Wood's Hole.
	Yankton.			
	21. Alpena.	Davenport.	Marquette.	Milwaukee.
	Portland, Me.			
	22. Alpena.	Milwaukee.	Pembina.	Portland, Me.
	23. Alpena.	Buffalo.	Marquette.	
	25. Alpena.			
	26. Alpena.	Grand Haven.		
	28. Pembina.			
	29. Alpena.	Pembina.		
	30. Alpena.	Boston.	Breckenridge.	Pembina.
	Washington.			
Aug.	3. St. Paul.			
	5. Boston.	Mt. Washington.		
	8. Alpena.			
	12. Alpena.	Chicago.	Dubuque.	Milwaukee.
	16. Alpena.	Erie.	Omaha.	Oswego.
	17. Alpena.	Breckenridge.	Du Luth.	Ft. Sully.
	La Crosse.	Oswego.	Rochester.	
	19. Rochester.			
	20. Alpena.			
	21. Dubuque.			
	22. Boston.	Detroit.	Duluth.	St. Paul.
	23. Breckenridge.	Erie.	Ft. Sully.	New London.
	24. Portland, Me.	Rochester.		
	Breckenridge.	Du Luth.	Milwaukee.	St. Paul.
	25. Alpena.	Du Luth.	Erie.	La Crosse.
	26. Alpena.	Du Luth.	Erie.	Mt. Washington.
	Rochester.	St. Paul.		
	27. Alpena.	Breckenridge.	Mt. Washington.	St. Paul.
	28. Marquette.			
	29. Alpena.	Du Luth.		

NOTE: From May 31 to June 30, inclusive, the four stations at Mount Washington are numbered Station No. 1, Station No. 2, Station No. 3, and Station No. 4; the summit being No. 1 and the base No.

PAPER 33.

A.

LEGATION OF AUSTRIA-HUNGARY,
Washington, May 6, 1873.

MR. SECRETARY OF STATE: At the meeting of meteorologists at Leipsic, a series of questions were propounded for the purpose of bringing about greater uniformity in the meteorological labors of various countries, and greater unanimity in the development of this science, the influence of which upon the interests of navigation and agriculture is indisputable.

As a means of attaining this end, it is proposed to convene a congress of meteorologists, similar to the international assemblies which have met from time to time for the purpose of discussing scientific questions of international interest. It has been agreed that the congress shall commence its session next autumn, at the city of Vienna; and

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that a committee shall be appointed to take charge of the preparatory labors, a committee to be composed of the following gentlemen: Dr. H. Wild, Dr. C. Bruhns, Dr. C. Jelinek.

In the fulfillment of this mission, Director Jelinek, on behalf of the committee just addressed a series of proposals to the imperial and royal minister of public instruction, asking at the same time, with a view to giving an official character to the projected congress, that these governments, which have hitherto favored the development of meteorological science, may be invited to send delegates, selected from among the heads of their meteorological institutes and the directors of observations having no connection with the State.

In consequence of this request, I have just received instructions from my government, Mr. Secretary of State, to send you ten copies of the report of the discussions which took place at the meeting of the meteorologists at Leipsic, and to invite, in its name, the Government of the United States to be pleased to take part in the projected congress, which will meet on the 1st of September, at Vienna, and which will remain in session for not more than fifteen days.

The encouragement which the Government of the United States has always given to the science in question, and the wonderful results which have been obtained by meteorological observations on this continent, renders its participation in the above-named congress in the highest degree desirable. I therefore entertain the hope that the Government of the United States will be pleased, in the interest of science and the general welfare, to join, by its representations at this congress, the experience of its meteorological institutes to the observations of the meteorologists of Europe, and thus the sphere of knowledge which is useful to mankind may be extended.

Be pleased to accept, Mr. Secretary of State, the assurance of my very high consideration.

LEDERER.

Hon. HAMILTON FISH,
Secretary of State, Washington.

B.

WAR DEPARTMENT,
Washington City, August 15, 1873.

SIR: Information having been communicated to this Department by the Department of State, that an invitation has been given by the Austrian government to the United States Government to take part in a congress of meterologists, to convene at Vienna on the 1st of September next, and the designation of a delegate to attend that congress having been committed to this Department, you are authorized to proceed to Vienna to represent the United States Government in the proposed congress.

You will inform the congress of the deep interest with which this Department regards whatever may relate to the advancement of systems of storm-warnings; and its desire that an interchange of international telegraphic weather-reports may be extended as widely as possible.

Very respectfully, your obedient servant,

WM. W. BELKNAP,
Secretary of War.

Gen. ALBERT J. MYER,
Chief Signal-Officer, U. S. A.

C.

MEMORANDUM.

The exchange of simultaneous reports between Russia and the United States to commence with those to be taken on January 1, 1874. The hour of observation 7.35 a. m., Washington (local) time. The reports will be exchanged by mail, the packages to be mailed on the 15th and last days of each month. The reports to be nearly as possible uniform in character and to exhibit at least pressure, temperature, wind, rain, relative humidity, and clouds.

F. C. WIL...

VIENNA, *September* 16.

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D.

MEMORANDUM.

The exchange of simultaneous reports between Turkey and the United States will commence with those to be taken on January 1, 1874. The hour of observation to be 7.35 a. m., Washington (local) time. The reports will be exchanged by mail. The packages to be mailed on the 15th and last days of each month. The reports to be as nearly as possible uniform in character and to exhibit at least pressure, temperature, wind, rain, relative humidity, and clouds.

COUMBARY,
Directeur de l'Observatoire impérial météorologique de Constantinople.

VIENNA, *September* 16, 1873.

PAPER 34.

The following table shows the percentage of verifications of probabilities for each division or subdivision named for each month, the monthly percentage of all, the yearly percentage of each, and the percentage of total verification.

Month.	New England.	Middle States.	South Atlantic.	Lower Lakes.	Eastern Gulf.	Ohio Valley.	Western Gulf.	Upper Lakes.	Northwest.	Monthly percentage for all sections.
1872.										
October	.79	.81	.79	.80	.77	.76	.77	.76	.76	.7788
November	.79	.79	.76	.76	.74	.80	.70	.74	.67	.7500
December	.91	.83	.79	.78	.80	.78	.76	.75	.73	.7812
1873.										
January	.82	.83	.79	.74	.75	.76	.76	.76	.72	.7700
February	.79	.80	.76	.80	.75	.70	.72	.76	.78	.7622+
March	.82	.79	.80	.78	.75	.77	.70	.74	.69	.7600
April	.82	.80	.84	.79	.77	.76	.78	.74	.77	.7850
May	.79	.79	.79	.75	.77	.74	.72	.73	.77	.7611
June	.81	.84	.87	.80	.74	.70	.....	.75	.72	.7787+
July	.87	.82	.83	.83	.80	.84	.79	.78	.76	.8133+
August	.84	.79	.80	.74	.77	.76	.74	.75	.74	.7700
September	.83	.85	.84	.79	.85	.80	.....	.77	.77	.8120
Yearly percentage for each section	.8150	.8117+	.7992	.7800	.7716+	.7642	.7440	.7525	.7400	9.3233+ ÷12 = .7769+

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